QL
671
W75

Vol. 53 MARCH, 1941 No. 1

The Wilson Bulletin

Published by the

Wilson Ornithological Club

Ann Arbor, Michigan

CONTENTS

The Prothonotary Warbler, a Comparison of Nesting Conditions in Tennessee and Michigan	Lawrence H. Walkinshaw	3
Ring-Billed Gulls of the Atlantic Coast	Harrison F. Lewis	22
John S. Main	Aldo Leopold and F. N. Hamerstrom, Jr.	31
Sexual Dimorphism in the Cowbird, Molothrus ater	Allan J. Stanley	33
Notes on Cuban Birds	David E. Davis	37
General Notes		41
Editorial		47
Wilson Ornithological Club Group Picture		48
Wildlife Conservation		50
Ornithological News		53
Ornithological Literature		54
Proceedings		59

THE WILSON BULLETIN

is published quarterly in March, June, September, and December, as the official organ of the Wilson Ornithological Club, at Ann Arbor, Michigan, and is sent to all members not in arrears for dues. The subscription price is $2.00 a year, invariably in advance, in the United States. Single numbers, 50 cents. Outside of the United States the rate is $2.25. Single numbers, 60 cents. Subscriptions should be sent to the Treasurer.

All articles and communications for publication, books and publications for review, exchanges, and claims for lost or undelivered copies of the magazine, should be addressed to the Editor.

The current issue of *The Wilson Bulletin* is printed by the Ann Arbor Press, Ann Arbor, Michigan.

Entered as second class matter July 13, 1916, at Ann Arbor, Michigan, under Act of Congress of March 3, 1879.

THE WILSON ORNITHOLOGICAL CLUB

Founded December 3, 1888. Named after Alexander Wilson, the first American ornithologist, and called the "Father of American Ornithology."

The officers for the current year are:

President—Lawrence E. Hicks, Ohio State University, Columbus, Ohio.
First Vice-President—George Miksch Sutton, Cornell University, Ithaca, N.Y.
Second Vice-President—S. Charles Kendeigh, University of Illinois, Champaign, Ill.
Treasurer—Gustav Swanson, University of Minnesota Farm, St. Paul, Minn.
Secretary—Olin Sewall Pettingill, Jr., Carleton College, Northfield, Minn.
Editor—Josselyn Van Tyne, University of Michigan, Ann Arbor, Mich.
Associate Editors—Margaret M. Nice and Pierce Brodkorb.

Membership dues are: sustaining membership, $5.00; active membership, $2.50; associate membership, $1.50 per calendar year.

Museums
of
8-29-1941

THE WILSON BULLETIN
A QUARTERLY MAGAZINE OF ORNITHOLOGY
Published by the Wilson Ornithological Club

Vol. 53 MARCH, 1941 No. 1

THE PROTHONOTARY WARBLER, A COMPARISON OF NESTING CONDITIONS IN TENNESSEE AND MICHIGAN

BY LAWRENCE H. WALKINSHAW

REELFOOT LAKE, a great resort for the hunter and fisherman, its shores dotted with camps and cabins, is located in the extreme northwest corner of Tennessee. Here extensive bottomland borders, heavily shaded park areas, numerous old buildings near the water's edge, and even protruding stubs from the lake itself, offer suitable nesting habitat for the Prothonotary Warbler (*Protonotaria citrea*). Here, in contrast to areas farther north, the species is abundant and mosquitos during day time are almost absent, an excellent area for ornithological investigation. The canal at Spillway, immediately south of the lake, offers the most comparable area to the one where I have studied the species in Michigan. Whereas, the Battle Creek River winds through a wooded bottomland and has areas of both shallow

Figure 1. The Spillway, Reelfoot Lake, Tennessee. April 9, 1939. At high water stage.

and deep water, this Tennessee canal, straight in course, is deeper, but also has shaded banks, one side especially having a bottomland region similar to the northern area. The widths of both streams are about the same. After studying the Prothonotary Warbler for two summers, 1937–38, along the Battle Creek River in Calhoun County, Michigan (studies published in 1938 and 1939) where conditions proved extremely adverse to the nesting of the species, I selected this Reelfoot Lake area for a comparative study.

On April 9, 1939, when Wayne Tice and I arrived at the lake, the Prothonotary Warblers were already present and some were even nesting. We erected thirty bird houses along the canal, all placed on bordering trees three or four feet above the water, excepting one placed on a tree in a park-like area of a local camp. With the aid of a young man, Carlos Woods, of Spillway, news of the happenings during the next few weeks in these bird houses was forwarded to me in Michigan with the result that the next visit was timed during the latter part of May and a third visit during the latter half of June. During the rest of the time many early morning hours and week-ends were spent during May and June visiting the region in southern Michigan where 36 bird houses had been placed along the river near Battle Creek.

During 1940, I visited the area at Reelfoot Lake for only a short period (April 24 to 26, and July 7 to 9). The usual hours were spent studying the area in Michigan.

The canal south of Spillway, Tennessee, normally about 75 feet wide, but wider with the high water conditions of early 1939 and 1940, forms the boundary between Lake and Obion counties. The trees on the area west of this canal had been somewhat cut over so that the east or Obion County bank offered the most shade. In 16 houses in Obion County in 1939 were found 16 nests of the Prothonotary Warbler, while 7 nests were located in the wooded bottomland regions along the lake shore. In Lake County only 8 nests were found in the remaining 14 houses, but 10 additional nests were under observation at one time or another. On April 25, 1940 seven male Prothonotary Warblers were found building nests in the bird houses along the canal. Many of these houses were at least two-thirds full of moss and cypress needles, yet there was no sign of a female bird about except in 3 cases where the nests were nearly complete. The spring of 1940 was very cold, even as far south as the Gulf states, consequently nesting started much later. Since I was unable to visit the area during May and June, the main portion of the nesting season was missed during 1940 in Tennessee, but when Bernard Baker and I visited the area in July we found that nearly every bird house had been occupied and that 6 still contained nests with eggs or young. In addition to these, 8 other nests were found. Only 5 of these nests (2 in bird houses) were located in Lake County, the remainder were located in Obion County.

In Michigan during 1939, 19 nests were found, only 8 of which were in bird houses. During 1940, 29 nests were located, of which 18 were in bird houses. During the warbler nesting season only 6 houses were occupied by House Wrens as compared with 18 during 1939.

Whereas only three birds were observed at Spillway, Tennessee on April 9, 1939, an average of 42 birds (26 to 53) per day were observed during the six-day period May 15 to 20, 1939 when an average of 12 hours per day were spent in the field. During late June, 1939 the number observed per day still ranged about 40 birds. At Walnut Log on the northeast corner of the lake 18 birds were observed along the Bayou du Chien on May 17, 1939 during a short visit to that area. Eleven male Prothonotary Warblers were observed during one hour on April 24, 1940, 31 birds during 14 hours on April 25 and about 50 adults on July 8, 1940 as well as an estimated 25 full-grown young. During the summers of 1939–40, 139 hours were spent in the field at Reelfoot Lake, durng which time 529 adult birds were observed, an average of 3.8 birds per hour. At Battle Creek, Michigan during the summers of 1937 through 1940, 679 hours were spent in the field during which time, 2262 adult birds were observed, an average of 3.33 birds per hour. These observations are summarized in the following table:

TABLE 1

MICHIGAN

Year	Hours in field	Number of adult birds observed	Average number of birds per hour
1937	204	820	4.02
1938	241	717	2.97
1939	110	358	3.25
1940	124	367	2.96
Total	679	2,262	3.33

TENNESSEE

1939	92	341	3.7
1940	47	188	4.0
Total	139	529	3.8

NESTING

During 1939, the first nest at Reelfoot Lake was shown to me by R. W. Morris on April 9, where it had just been accidentally tipped out of an overturned motor-boat. It contained three eggs, the first of which must have been laid by April 5 or 6. The first young left a neighboring porch on May 11, giving the approximate date of the first laid egg as April 17 in that nest. The known dates of first laid eggs in nests

in that region during 1939 were as follows: April 30, May 1, 1, 1, 5, 6, 7, 13, 14, 16, 16, June 3, 11 and 23. Although I did not visit the Tennessee area during July and August, 1939, Carlos Woods stated there was a nest in bird house No. 30 in the Morris yard from which the young left about August 10. He captured the female parent, a banded bird that had previously raised a brood in nest box No. 1, some 150 yards away. The first egg in this nest must have been laid about July 15. In 1940 no nests were found with eggs even as late as April 26, yet several nests were ready for eggs when we left the area on that date. On July 9, 1940, when we left the area for the last time, three nests still contained eggs. The young in those nests would have left between July 21 and August 1.

Figure 2. Prothonotary Warbler at the nest hole. Reelfoot Lake. July 8, 1940.

In Michigan during 1939 the first laid eggs were as follows: May 18, 21, 22, 24, 24, 27, 31, 31, June 6, 7, 8, 11, 15, 15 and 27. The last nest was terminated July 6. During 1940 the first eggs of sets were laid May 22, 25, 26, 27, 29, June 2, 6, 7, 8, 10, 12, 13, 15, 18, 23, July 1 and 5. The last nest was terminated on July 14.

Usually Prothonotary Warblers were much more leisurely with their nesting operations at Reelfoot Lake than in Michigan. First nests in both Michigan and Tennessee required longer than second or third

nests in both time of construction and rest following construction before the first egg was laid. These averages were as follows:

TABLE 2

MICHIGAN

Year	Number of nests	Average time required for nest construction	Average period of rest before laying of first egg
1937	19	3.68 days (1-11)	3.2 days (1-5)
1938	16	2.13 " (1-7)	1.69 " (1-5)
1939	10	4.2 " (1-6)	1.4 " (1-4)
1940	9	3.3 " (1-12)	1.1 " (1-2)
Average		3.26 "	2.07 "
TENNESSEE			
1939	8	8.8 days (6-12)	8.0 days (2-17)

Comparison of the breeding season at Reelfoot Lake, Tennessee with that at Battle Creek, Michigan is presented below:

TABLE 3

Year	Date first nest was started	Date of first egg	Date of termination of last nest	Date when young would have left last nest	No. of days between first egg and termination of last nest	No. of days between beginning of first nest and date when young would have left last nest
MICHIGAN						
1937	May 15	May 22	July 14	July 23	53	69
1938	May 4	May 8	July 7	July 23	60	80
1939	May 13	May 18	July 6	July 21	49	69
1940	May 18	May 22	July 14	July 29	53	73
Average	May 12	May 17	July 10	July 24	53	73
TENNESSEE						
1939	April 4 (est.)	April 6	August 10	August 10	126	128
1940	April 22 (est.)	May 1 (est.)	July 30 (est.)	August 1 (est.)	91	101
Average	April 13	April 18	August 4	August 5	108	114

Probably few birds in either Michigan or Tennessee nest during the entire breeding season. In fact no bird was found attempting two nestings after they had had one success. No birds have ever been found successful with two nestings in Michigan although one was found and in all probability more in Tennessee. No birds were found laying more than 9 eggs in Tennessee nor have any in Michigan been found laying more than 13 in one season. In the following table are the records for the average breeding seasons in Michigan for different females followed through the entire breeding season, from the time of beginning nest building in the first nest until the last nest had terminated: (Averages given, extremes in parenthesis).

TABLE 4

MICHIGAN

Year	Number of females	Nests attempted	Number of eggs laid	Number young produced	Number of days nesting
1937	6	2 (2–3)	8 (7–10)	1 (0–6)	39 (30–51)
1938	6	3 (2–5)	11 (9–13)	3 (0-5)	48 (38–57)
1939	1	2	9	3	52
1940	3	2.6 (2-4)	9 (7–11)	2.6 (0–5)	42 (39–47)
Average		2.5	9.3	2.1	43.7

Female No. 37-103940, a return from 1937, was followed during two nestings during 1939 in Michigan, over a period of 52 days, from May 14 until July 6. She raised three young in her first brood then attempted a second nest which failed. She happened to be the first bird captured during 1940, nesting about a quarter of a mile from her 1939 site and about a half mile from where she was originally banded in 1937. This nest was destroyed, evidently by House Wrens, on June 2 and I did not find another nest belonging to her. It was interesting that the same day, only a few hundred yards downstream, I captured No. 39-54051, her daughter raised the year before. No. 39-54051 during 1940, her first year as a breeder, attempted four nests, laid 11 eggs and failed to produce any young. Her nesting sites were not very well chosen at times, although one was where a brood of young had been raised by a different female during 1939.

In Tennessee the following four females were followed through most of the breeding season of 1939:

TABLE 5

TENNESSEE

Female	Nests attempted	No. of eggs laid	No. of young produced	Nesting season	Number of days
39-54103	2	9	5#	April 18-June 24#	67 K 83 est.
39-54104	2	9	5#	April 18-June 24#	67 K 83 est.
39-54105	2	9	5#	April 18-June 24#	67 K 83 est.
39-54147	2	9	7	May 27-* Aug. 10	*75 K
Average	2	9	7	April 28-July 6 appr.	81 est.

#Outcome of last nest unknown, but it contained eggs on June 24. Estimated young would have left these nests about July 10.
K—known.
est.—estimated.
*This female probably had an earlier nesting which was unobserved.

The nesting seasons for the above Tennessee birds were from the time of beginning nest building in the first nest until the last date the bird was noted nesting.

Eggs were deposited during the very early hours of daylight, usually between 5 and 7 A.M. (Eastern Standard Time) in Michigan and between 6 and 8 A.M. (C.S.T.) in Tennessee. Incubation started invariably the night prior to the laying of the last egg. The markings on the Tennessee eggs appeared thicker and darker than those on eggs in Michigan. Weights and measurements of eggs when fresh are listed below:

TABLE 6

MICHIGAN

Year	Number of eggs	Length in mm.	Width in mm.	Weight in grams
1937	78	18.47	14.55	2.07
1938	40	18.68	14.8	2.11
1939	31	18.33	14.88	2.07
1940	47	18.68	14.75	2.12
Average		18.53	14.70	2.09
TENNESSEE				
1939	88	17.87	14.25	1.94
1940	10	17.94	14.78	1.95
Average		17.88	14.29	1.94

The average number of eggs per set during the different years have been as follows:

TABLE 7

MICHIGAN

Year	Number of sets	Average number of eggs per set	Average weight of set in grams
1937	16	5.06	10.4742
1938	18	4.94	10.4234
1939	13	5.07	10.4949
1940	15	4.93	10.4516
Average		4.98	10.4590
TENNESSEE			
1939	32	4.65	9.0210
1940	12	*4.18	8.1510
Average		4.53	8.7976

*These were all late nests.

At Battle Creek, Michigan over a four-year period the following averages of egg sets were recorded:

TABLE 8

MICHIGAN

Year	May 1–15		May 16–31		June 1–15		June 16–30		July 1–15
	No. sets	Average no. of eggs	No. sets	Average no. of eggs	No. sets	Average no. of eggs	No. sets	Average no. of eggs	1 set
1937			7	5.85	5	5.0	4	4.0	
1938	6	5.33	5	5.0	6	4.66	1	4.0	
1939			7	5.14	5	5.2	1	4.0	
1940			5	5.4	5	5.6	4	4.0	3.0
Aver-age	6	5.33	24	5.37	21	5.09	10	4.0	3.0

In the following table are listed the sizes of sets of eggs in Tennessee in each period of time given:

TABLE 9

TENNESSEE

	1939						*1940	
Eggs per set	April 15–30	May 1–15	May 16–31	June 1–15	June 16–30	July 1–15	June 1–15	June 16–30
3			1				1	
4				2	5	1	3	6
5	1	13	5	3	1		1	
6								1
Average	5.0	5.0	4.66	4.6	4.16	4.0	4.0	4.28

*These dates were estimated from conditions in nests found July 7 to 9.

In the following table are listed the per cent of different size egg sets in both Michigan and Tennessee:

TABLE 10

	Michigan								Tennessee			
	1937		1938		1939		1940		1939		1940	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
3 eggs	1	6.25					2	13.33	1	3.12	1	8.33
4 eggs	3	18.75	5	27.77	3	23.07	2	13.33	8	25.00	9	75.00
5 eggs	5	31.25	9	50.00	6	46.14	6	40.00	23	71.87	1	8.33
6 eggs	7	43.75	4	22.22	4	30.76	5	33.33			1	8.33

The incubation periods in Tenneessee and Michigan were very similar. Nineteen eggs with a known incubation period at Reelfoot Lake, Tennessee averaged 12 days and 10 hours, varying from 12 to 13½ days during 1939. In Michigan during 1937, 1938, 1939, and 1940, the incubation period obtained on 64 eggs averaged 12 days and 17 hours (12 to 14 days). Fourteen young at Reelfoot Lake averaged 11 days of age when leaving the nest in 1939, while 21 young in Michigan during 1939 and 1940 remained in the nest for a period of 10¾ days.

In Tennessee after the young had left a nest, the period between that date and the first laid egg in the next nest for four females during 1939 was 14, 15, 18 and 21 days, averaging 17. In Michigan for three females for the same year, the periods were 4, 4, and 8 days, averaging 5.3 days.

At Reelfoot Lake during 1939, eighteen young averaged in weight at hatching time 1.88 grams; while during 1937 and 1938 in Michigan 26 young also averaged 1.88 grams.

Survival of the Young

For more than any other reason I made the trips to Reelfoot Lake during 1939 to discover whether the Prothonotary Warbler had any better success in its nesting than it did in Michigan. Although I have studied many species of birds, keeping records of a large number of nests, I have found no species to have as low a survival ratio of young produced from eggs laid as the Prothonotary Warbler in Michigan. Many a day I have visited nests in Michigan finding as high as four out of ten destroyed. In Tennessee during a period of one week in late May 1939, 22 nests were under observation, of which two were deserted because of human interference and only one was destroyed. Following are the figures of nests and eggs in Michigan and Tennessee:

TABLE 11

Year	Nests	Number successful	Per cent	No. eggs	No. eggs hatched	Per cent	No. young left	Per cent
MICHIGAN								
1930–6	6	3	50.00%	25	17	68.0%	17	68.0%
1937	27	2	7.42%	98	24	24.47%	9	9.18%
1938	40	7	17.50%	106	35	33.01%	21	19.81%
1939	19	7	36.84%	78	31	39.74%	19	24.36%
1940	29	9	31.03%	106	52	49.05%	40	37.73%
Mich. total	121	28	23.14%	413	159	38.47%	106	25.66%
TENNESSEE								
1939	30	19	63.33%	139	78	56.11%	78	56.11%
1940	6	6	100.00%	24	22	91.66%	22	91.66%
Tenn. total	36	25	69.44%	163	100	61.35%	100	61.35%
MICHIGAN AND TENNESSEE								
Total	157	53	33.75%	576	259	44.98%	206	35.76%

In Tennessee 25 nests out of 36 were successful, while 28 were successful out of 121 in Michigan. Yet out of the 28 nests in Michigan, only 106 young were produced, an average of 3.7 per nest; while in Tennessee 25 nests produced 100 young, an average of 4.0 birds. One must also consider that egg sets in Michigan during the shorter breeding season averaged larger too. A number of eggs disappeared from Michigan nests during the period of incubation so that there were fewer eggs at hatching time than at the completion of laying. This was probably the work of the House Wren (*Troglodytes aedon*). Nothing like it happened in Tennessee where the Hous Wren does not nest.

The following table shows comparable figures for the different years, of nests and eggs in Michigan and Tennessee, showing both complete and partial success:

TABLE 12

	1930–36		1937		1938		1939		1940		1939		1940	
	Nests	Eggs	Nests	Eggs	Nests	Eggs	Nests	Eggs	Nests	Eggs	Nests	Eggs	Nests	Eggs
	MICHIGAN										TENNESSEE			
Completely successful	3	17	1	6	3	14	1	4	5	26	11	54	5	20
Partially successful	0	0	1	3	4	7	6	15	4	14	8	24	1	2
Total successful	3	17	2	9	7	21	7	19	9	40	19	78	6	22
Unsuccessful	3	8	25	89	33	85	12	59	20	66	11	61	0	2
Total	6	25	27	98	40	106	19	78	29	106	30	139	6	24

All nests, whether they had had eggs laid in them or not were considered as either successes or failures according to their outcome. Three nests during 1937, eight during 1938, and two during 1940 were completed but no eggs were ever laid in them in Michigan. During 1939, in Tennessee one nest was completed but for some reason no eggs were laid.

Following are tables of the loss of both eggs and young in both Michigan and Tennessee nests, classified as nearly as possible according to the destructive agencies:

TABLE 13

MICHIGAN

Year	Accident to eggs by man	Cow-bird	De-serted	Female killed	Flooded	House Wren	In-fertile	Predatory			
								bird	mam-mal	un-known	
Hatched young which never left the nest											
1937					3	7			5		
1938						4				7	
1939	1								10		
1940								6	5	1	
Total	1				3	11		6	20	8	Total–49
Eggs that never hatched											
1930–6			3			2?		3			
1937	1		6		24	16	6		12	9	
1938		1?	6		5	33	3	4	16	6	
1939			2			14	17		10	5	
1940			7			25	8	3	5	6	
Total	1	1?	24		29	90	34	10	43	26	Total–258

TENNESSEE

Eggs that never hatched

1939	3		18	5			13	5	19		Total–63

In Tennessee during both 1939 and 1940, all eggs that hatched were successful. During 1940, with what meagre notes I had, only two eggs failed to hatch, both because they were infertile. In Michigan the House Wren is probably the worst enemy of the Prothonotary Warbler. Although I have never seen them actually destroy a nest, I have found the eggs underneath a nest box the entrance of which was too small for anything but a small bird, mouse, or snake. The eggs in all cases had small bill holes in them. Always after this type of nest destruction, a male wren was in possession of the box the following day. Evidently a certain procedure was regularly followed by the male wren. When the warblers were away from their nest, the wren would approach the nest box or cavity, stealthily enter the nest, then throw the eggs out, piercing them with his small bill as he did so. On one occasion I watched a wren cautiously approach a house, reach the door, then find a very angry Prothonotary Warbler at the entrance. Both warblers immediately drove him away, showing considerable concern.

The female warblers which sat the closest on the nest were the most successful but even then wrens occasionally found them away. During laying time the female Prothonotary Warbler was seldom found at the nest. If a male wren was in the neighborhood the eggs sometimes disappeared as fast as laid, the Prothonotary finally deserting her nest. This procedure occurred in the region of certain individual male wrens more often than near others. After taking possession of a house or cavity, the male wren would throw out all of the moss and nesting material before filling it with sticks. Of 413 Michigan eggs, we credited the House Wren with destroying 90 eggs and 11 young, or 24.45 per cent. During 1940, although 25 eggs were evidently destroyed by House Wrens, the Prothonotary Warbler had the best success for any complete summer since the study was started, fledging 37.73 per cent of the eggs laid. Only 6 pairs of House Wrens nested in the bird houses as compared to 18 during 1939. I believe the hard winter of 1939-40 in the southern states may have accounted for this decrease. Following are the percentages of the destructive agencies in both Michigan and Tennessee:

TABLE 14

MICHIGAN 1939-1940 (413 eggs)

	Successful	House Wren	Predatory mammals	Infertile	Flooded	Man	Unknown	Deserted	Cowbird	Predatory bird
No.	106	101	63	34	32	2	34	24	1?	16
%	25.66	24.45	15.26	8.23	7.75	.48	8.23	5.81	.24	3.87

TENNESSEE 1939-40 (163 eggs)

No.	100		19	13		26				5
%	61.35		11.65	7.97		15.95				3.07

Twenty-six eggs in Tennessee failed due to desertion, the death of the parent, or molestation caused directly or indirectly by man. The success of the remaining 137 eggs was 72.99 per cent. Man had little effect on the breeding area in the north. In Michigan raccoons as well as mink were noted on the area. On one occasion a bird house was emptied of its family of young House Wrens by a raccoon whose tracks were observed going up the log to the house. The pin feathers of the young were found on the end of the log. Once a mink was noted with something in his mouth as he swam across the river. Mice were occasionally found in houses and once a milk snake was found in a House Wren's nest from which several eggs had disappeared. Opposums were found on both areas, as were red squirrels, Blue Jays, and Grackles. Many snakes were found on both areas. A large unidentified snake was found dead in the canal at Reelfoot Lake while I was trying to capture the parents in bird house No. 1. I loosened its body, expecting it to float

downstream, but it caught in a lower branch of the willow tree directly beneath the bird house. Both parents scolded and refused to enter the house until I removed the snake. When that was done the parents were captured in a very few minutes. One bird at Reelfoot Lake was killed on the highway by an automobile, but this probably produces only a very small percentage of casualties.

Little appears to have been learned of the survival of the other species of American warblers. Dr. Harry W. Hann, with his intensive work on the Ovenbird, (1937:198) probably has by far the most complete data on the survival of young of any of the warblers. He found that of 161 eggs, 102 hatched and 70 young (43.5 per cent) left the nest. The Prothonotary Warbler is, of course, the only one of our warblers to nest in a hole in a tree or in a bird house.

Mrs. Margaret M. Nice (1937: 143-4) gave a summary of the survival of young of a number of studies including her own with the Song Sparrow (*Melospiza melodia beata*). The general average for Passerine birds nesting in the open was 43.0 per cent of the eggs and 45.9 per cent of the nests. For hole-nesting birds she gave the average as about 65.0 per cent for a number of studies. Following is a summary of a number of studies of hole nesting species giving the survival of fledged young and the percentage of success in each case:

TABLE 15

Observer	Year	Species	Number eggs laid	Number young hatched	Number young matured	Number nests	Number successful	Percent success		
								Hatch	Fledgling	Nests
Musselman	1933–35	Bluebird	1223		839				68.6	
Laskey	1938	Bluebird	460		265	102	67		57.6	65.7
Walkinshaw	1919–38	Bluebird	203	131	127	50	33	64.5	62.5	66.0
Chapman	1933–35	Tree Swallow	469	421	334			89.7	71.2	
Low	1931–33	Tree Swallow	1406	1176	694			83.6	49.0	
Weydemeyer	1928–35?	Tree Swallow	363	358	340			98.6	93.6	
Walkinshaw	1920–38	Tree Swallow	24	17	17	6	4	70.8	70.8	66.0
Walkinshaw	1919–39	House Wren	333	199	161	64	35	59.7	48.3	54.7
Walkinshaw	*1930–40	Prothonotary W.	413	159	106	121	28	38.5	25.7	23.1
Walkinshaw	†1939–40	Prothonotary W.	163	100	100	36	25	61.3	61.3	69.4
Total			5057		2983	379	192		58.8	50.6
Total, excluding Michigan Prothonotary Warbler			4644		2877	258	164		61.9	63.5

*Michigan

† Tennessee

Since the Prothonotary Warbler in Michigan was so atypical in its success of both nests and young fledged it is not added into the last line above. One notes in the above studies that the percentage of success of young fledged from eggs laid varied between 48.3 and 93.6, with the exception of the Michigan Prothonotary Warblers.

Weights

In the following table are a few weights and measurements of Prothonotary Warblers taken at both Battle Creek, Michigan and Reelfoot Lake, Tennessee. It will be seen that the Tennessee birds are smaller and lighter in weight:

TABLE 16

Battle Creek, Michigan (1937-1940)

Sex	Number of birds	Date	Weight in grams	Wing in mm.	Culmen in mm.	Tarsus in mm.
Female	45	May 12–July 5	17.69	68.93	13.77	18.44
Male	14	June 2–July 13	14.85	73.71	14.3	19.14
Reelfoot Lake, Tennessee (1939-1940)						
Female	33	May 15–July 9	15.45	67.5	13.83	18.65
Male	13	April 25–July 9	14.27	70.96	14.41	18.7

Female birds varied in Michigan during the summer between 13.6 grams and 20.0 grams; in Tennessee between 12.0 and 18.7 grams. Males in Michigan varied between 13.6 and 15.5 grams; those in Tennessee between 12.6 and 15.8 grams. Wing measurements were taken with a straight-edge ruler from the bend of the wing to the tip of the longest primary.

Comparable weights of females for different periods during the summer follow below:

TABLE 17

	Michigan (1937-1940)		Tennessee (1939-1940)	
Time	Number of individuals	Average weight	Number of individuals	Average weight
May 12–31	11	17.23 grams	17	16.23 grams
June 1–15	24	18.43 "		
June 16–30	9	16.76 "	7	14.38 "
July 1–9	1	13.4 "	9	14.85 "
Average	45	17.69 "	33	15.45 "

Banding

I banded my first Prothonotary Warbler in Michigan in 1930 (when a female and her five young were banded) but I did not do very much banding until 1937 when I captured a number of females and young on the Battle Creek River area. Since that time I have banded 54 adults and 100 young in Michigan and 42 adults and 78 young in

Tennessee. The following table gives the yearly distribution as to sex and age:

TABLE 18

MICHIGAN

BIRDS BANDED				RETURNS				
				Female			Male	
Year	Adult female	Adult male	Young	1st year after banding	2nd year	3rd year	1st year	2nd year
1937	11	0	9					
1938	9	5	21	2				
1939	11	4	27*	2	1		3	
1940	9	5	43**	2	2	1	3	1
Total	40	14	100	6	3	1	6	1
TENNESSEE								
1939	23	7	60					
1940	8	4	18	2			3	
Total	31	11	78	2			3	

* Eight young banded during 1939 did not leave the nest.

** Nine young banded during 1940 did not leave the nest.

In addition to the above returns one female returned during 1940 in Michigan which had been banded as a nestling during 1939 and one male in Tennessee did the same. The remainder of the returns were banded as adults. One female in Michigan was banded during 1937, was not recaptured during 1938, but again returned during both 1939 and 1940.

Adults during 1938, 1939, and 1940 in both Michigan and Tennessee were marked with colored bands in addition to Biological Survey bands. Young were marked on the right leg with Survey bands only.

TERRITORY

The Prothonotary Warbler is a very strongly territorial species. When a male takes possession of a certain area he continually drives off all opponents if he is able. At certain areas in Michigan I have watched these birds battle intermittently for two or three days, usually for the same bird house, one male finally taking possesion. In addition I have observed them to drive off House Wrens (*Troglodytes aedon*), Black-capped Chickadees (*Penthestes atricapillus*) and Yellow Warblers (*Dendroica aestiva*). On one occasion a pair of Prothonotary Warblers built their nest and laid 6 eggs over that of a Black-capped Chickadee with seven eggs. Soon a male House Wren took possession, clearing

out the entire contents of the house. Then the wrens built a nest and laid 6 eggs.

The male Prothonotary Warbler selects the territory, selecting the nesting site before he becomes mated for the first nest, but thereafter both birds inspect the new nest sites. Usually birds along the Battle Creek River in Michigan followed definitely along the banks. In 1937, I watched one pair, which had had a nest destroyed, inspect several bird houses on the river bank, then disappear upstream. A few days later I found their nest three-quarters of a mile upstream from the first, about 68 feet from the river bank. Most pairs remained in the immediate region of the first nest for successive nests but occasionally they moved, as did this pair, a considerable distance. Three pairs in Michigan, which have attempted second nestings after one successful one, moved; one directly across the river; another across and 150 feet downstream; the third across and 500 feet downstream. None were successful, yet none attempted another nesting after the second nest failed. During 1939, three females raised broods in Tennessee, then built their second nests in the same bird houses. In all cases studied, parents remained mated for the season. During 1937, it was possible that one male had two mates, but no other cases of suspected bigamy were noted. At one bird house in Tennessee during 1939 both male and female were banded at a nest in May when they raised four young. A second nest in the same house in June was made by another pair which then raised four young. Both old and young were banded. Then late in June and early July a third pair nested there and I banded the female. The first pair was not found after their first success, but the second pair moved about 150 yards to another house where they raised their second brood. During 1940 in Michigan a female, banded as a nestling, returned to nest within a half mile of where she was raised in 1939. She nested in a bird house for the first time. The nest was destroyed, evidently by House Wrens. Her second nest was directly across the river in a fifteen-foot stub and was destroyed. She then attempted a third nest in a small stub 35 feet from the original bird house. This nest was also destroyed and she then returned to the original bird house for her fourth failure of the year. A male Prothonotary Warbler was captured in Tennessee during April, 1940 while he was building a nest in one of the bird houses. He did not yet have a mate but was found to be a nestling of 1939 from the area. He was raised about a half mile from the bird house where he was building his nest. These two birds are the only nestlings which I have found returning to their original areas to nest.

During 1937, 1938, 1939, and 1940 Michigan birds were found attempting to nest in the same house where a previous nest of their own had met with failure due to some predator. Only one of these nests was ever successful.

During 1939 in Michigan there returned two pairs of birds which had been banded the previous year. One of these pairs remated for the

season, attempting their first nest in the very bird house that had produced their successful nesting during 1938. The male of the second pair returned to the same identical territory that he had occupied during 1938 but with a new mate. His mate of 1938 was found nearly a mile downstream with a new mate. Another male nested in the same stub as during 1938 but had a new mate. His 1938 mate was not found during 1939. Probably the three return males out of five banded during 1938 give some definite idea of the number of birds returning, since the females were found to nest occasionally some distance from their past season's site. One female banded during 1937 was not captured during 1938 but returned to the original area during 1939, spending the entire season only a short distance from her 1937 nest. During 1940 she was again captured during her first nesting about a half mile from the 1937 nest but she was not found during the remainder of the season.

Conclusions and Summary

Comparable studies of the Prothonotary Warbler were made at Reelfoot Lake, Lake and Obion Counties, Tennessee and the Battle Creek River, Calhoun County, Michigan. In Michigan 121 nests were observed over an eleven year period, 1930-1940. In Tennessee 44 nests were observed during the two years, 1939-1940.

In Michigan, at the northern edge of the range of the species, the birds are larger (Bergmann's Rule), nesting starts later, less time is spent in preparatory activities before laying, eggs and egg sets are larger (9 per cent during 1939), the species is typically single-brooded, only occasionally attempting second broods (providing that the first attempt is successful).

In Tennessee the nesting season is longer, due to an earlier start, more time is spent before laying each set in preparatory activities, and the species is typically double-brooded.

The 1939 breeding season in Michigan lasted over a period of 49 days, from May 18 until July 6, while in Tennessee it lasted from April 6 until August 10, or 126 days. The first date given was the date of the first laid egg and the last the date of the termination of the last nest. In Michigan during 1940 the breeding season lasted 53 days, from May 22 until July 14. In Tennessee during 1940 no nests contained eggs by April 26 but the breeding season was estimated to be from May 1 until August 1, or 91 days.

In Michigan from 1930 through 1940, 121 nests of the Prothonotary Warbler were observed. Only 28, or 23.14 per cent, were successful. Out of 413 eggs, 159 (38.47 per cent) hatched and 100 young were fledged (.87 per total nest; 3.78 per successful nest). The fledging success was 25.66 per cent of eggs laid. More failures in Michigan resulted in more nestings by individual birds.

In Tennessee during 1939, 30 nests were observed until terminated or successful; 19 were successful (63.33 per cent) while out of 139 eggs, 78 hatched and all the young lived to leave the nest or 56.11 per cent fledging success of eggs laid; 2.6 young were fledged per total nest; 4.1 per successful nest.

In Michigan there is a much greater demand for nesting sites among hole-nesting birds than in Tennessee, with the result that the Prothonotary Warbler meets with better success in Tennessee. The House Wren in Michigan is the most aggressive opponent of the warbler. During the first year on the Michigan area fewer wrens were nesting, increasing each year through 1938 and 1939 and occupying more bird houses each year. The Prothonotary Warblers moved back into the bottomland regions more during 1939 as a result. During 1940 there was a tremendous decrease in the House Wren population in Michigan probably due to the very hard winter of 1939-1940 in the southern states. Where there had been 18 pairs on the nesting area during 1939 there were only 6 during 1940. As a consequence more Prothonotary Warblers moved back into the bird houses and the Prothonotary Warbler had the best nesting success in Michigan that had been recorded. Even though the warbler nesting success in Michigan was much less than in Tennessee, the numbers of adult birds varied little from year to year.

Fifty-four adults and 100 young were banded in Michigan and 42 adults and 78 young were banded in Tennessee. Few birds banded as young were retaken in subsequent years but a fair number of adults, especially males, were retaken later. These adults had usually returned as nearly as possible to their previous nesting territory.

In both Michigan and Tennessee pairs of Prothonotary Warblers attempted to nest in the same general region each year, often nesting the second or third time in the same bird house. In Michigan this was true whether the first nest was successful or not.

Literature Cited

Chapman, Lawrence B.
1935 Studies of a Tree Swallow Colony. *Bird-Banding*, 6:45–57.
1939 Studies of a Tree Swallow Colony (Second Paper). *Bird-Banding*, 10:61–72.

Hann, Harry W.
1937 Life History of the Oven-bird in Southern Michigan. *Wilson Bulletin*, 49:145–237.

Laskey, Amelia R.
1939 A Study of Nesting Eastern Bluebirds. *Bird-Banding*, 10:23–32.

Low, Seth H.
1934 Nest Distribution and Survival Ratio of Tree Swallows. *Bird-Banding*, 5:24–30.

Musselman, T. E.
1935 Three Years of Eastern Bluebird Banding and Study. *Bird-Banding*, 6:117–125.

NICE, MARGARET M.
1937 Studies in the Life History of the Song Sparrow, I. *Trans. Linn. Soc. N.Y.*, 4:1–247.

WALKINSHAW, LAWRENCE H.
1938 Nesting Studies of the Prothonotary Warbler. *Bird-Banding*, 9:32–46.
1939 Additional Information on the Prothonotary Warbler. *Jack-Pine Warbler*, 17:64–71.

WEYDEMEYER, WINTON
1935 Efficiency of Nesting of the Tree Swallow. *Condor*, 37:216–17.

1416 West Michigan Avenue, Battle Creek, Michigan.

BOB-WHITE POPULATIONS AS AFFECTED BY WOODLAND MANAGEMENT IN EASTERN TEXAS. By Daniel W. Lay. Texas Agric. Exper. Sta. Bull. 592, Aug., 1940: 37 pp., 13 figs., 4 tables.

This is an informatively illustrated publication based chiefly upon records of numbers and distribution of Bob-white coveys in relation to plant succession in forest habitats. Studies were carried on by means of stomach analyses, field observations, quadrats, inquiry into the histories of cutover, burned, and grazed woodlands, and through supervised driving by C.C.C. enrollees for census purposes.

Thick woods did not constitute favorable environment for the species. Also few birds were found during the years immediately following logging; between the fifth and ninth years, quail populations generally reached peak levels, to begin their decline about the tenth year. The status of a Bob-white population, however, is more significantly linked with vegetative types than with the age of the cutover. Burning disturbed plant succession more than did timber cutting; less than clearing or cultivation.

Final paragraphs of author's summary:

"Recommendations for management of quail in the cutover shortleaf-loblolly pine-hardwood type include plowing and brush clearing in spots and along trams, protection from heavy grazing and overshooting, little or no restocking of quail or control of so-called predators except locally as needed, some burning of slash under certain carefully regulated conditions, optional planting of feed patches, and careful regulation of hunting."

"Favorable environmental change could be induced by land owners under a rotational system of harvesting timber. They could favor the interspersion of various timber age-classes that is essential to continuous quail production. Foresters should give consideration to such silvicultural practices as will be compatible with both timber and wildlife management."

The bulletin should be a useful reference for all persons interested in the ecology or management of south-central Bob-whites. It leaves the impression of being conservatively written, with the author himself recognizing that some phases of the investigation require both more intensive and extensive work.

On the other hand, the use of "carrying capacity" in apparent synonymy with quail counts may be questioned, especially when populations were under observation for a period as brief as two years and were living on lands subject to unregulated shooting. It may likewise be questioned whether an exposition having the scope indicated by the title should have been presented without referring either in text or in bibliography to the researches of Stoddard on southeastern Bob-whites, which almost certainly laid a pioneering groundwork for the Texas study. —Paul L. Errington.

RING-BILLED GULLS OF THE ATLANTIC COAST

BY HARRISON F. LEWIS

THE principal breeding grounds of the Ring-billed Gull (*Larus delawarensis*) are on islands in lakes in the interior of North America, both in southern Canada and in the northern United States. The only nesting colonies of this gull now known to exist along the Atlantic coast of this continent are a half-dozen or so that are situated on the eastern part of the north shore of the Gulf of St. Lawrence, in Saguenay County, Province of Quebec.

The fact that the Ring-billed Gull nests in this region was first made known by John James Audubon, who investigated the bird life of this coast during his "Labrador trip" in the summer of 1833. On July 18 of that year, while Audubon's vessel, the "Ripley," was anchored in Hare Harbor, Little Mecatina Island, some of his party, headed by John Woodhouse Audubon, found a Ring-billed Gull colony containing some 200 nests on an island in a bay in the vicinity. This colony is reported and described by John James Audubon in his account of the Ring-billed Gull in "Birds of America," [1] and also in his Labrador Journal,[2] published by Maria R. Audubon. The Ring-bills that now nest in Mecatina Bird Sanctuary are probably the present-day representatives of this group of birds.

Apparently the next ornithologist to report Ring-billed Gulls nesting on the north shore of the Gulf of St. Lawrence was M. Abbott Frazar, who, in 1884, fifty-one years after Audubon's trip to this region, found a few moderate-sized colonies of this species in the vicinity of Cape Whittle.[3] He reported that, owing to their being frequently disturbed, they kept shifting about. These colonies are probably represented today by the Fog Island nesting group of Ring-billed Gulls.

Still a third nesting group of these gulls was reported from this coast by Charles W. Townsend,[4] who, on July 16, 1915, visited the small island near Pointe au Maurier where a colony of this species is accustomed to nest. He found about 400 Ring-billed Gulls nesting there but did not come upon any other colonies of these birds during his trips along that coast.

The Ring-billed Gulls of the north shore of the Gulf of St. Lawrence show, as Frazar stated, a tendency to shift their nesting areas at times from island to island, in some instances over a distance of several miles. Examples of the scattering of a large colony into several smaller groups, nesting on as many different islands, have also been noted. Sometimes these changes are due to evident causes, such as human persecution, and sometimes the reasons for them are obscure. In spite of these shifts, however, the Ring-billed Gulls of this coast have in recent years bred in six distinguishable groups, each of which is restricted to a determinable archipelago and shows a strong tendency

to nest in most years on one or two preferred islands. These groups are as follows:

1. *Kegaska River Group.*—In years when they are not disturbed, the tendency is for all members of this group, the largest on the coast, to nest on the outer island in the small group of islands a short distance west of the mouth of the Kegaska River. I have never known this island to be completely abandoned by these birds, but in some years detached sections of this group nest on islands farther eastward, sometimes as much as 12 miles from the parent colony. On June 25, 1940, I counted in this colony 1028 nests with contents (eggs or newly-hatched young) representing an adult breeding population of at least 2056.

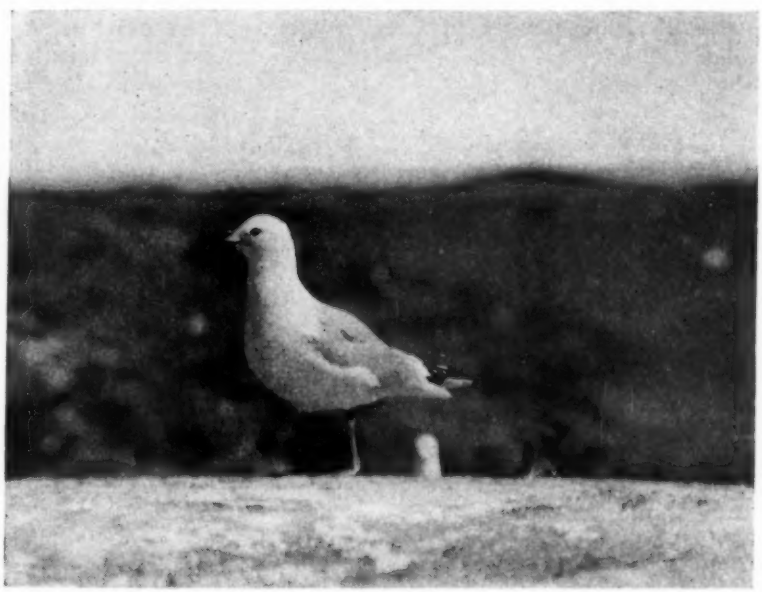


Figure 1. Ring-billed Gull at Kegaska River, Quebec. (National Parks of Canada photograph).

2. *Fog Island group.*—This group shows a strong tendency to shift about, to split up into sections, and to vary in total observable numbers. Fog Island may be considered its headquarters, but nesting birds believed to belong to it have been found as far away as Triple Island, 8 miles to the west, and Wolf Island, 10 miles to the east. In 1940 this entire group is believed to have nested on Fog Island, where, on June 29, I counted 135 occupied nests of this species, representing an adult breeding population of at least 270.

3. *Pointe au Maurier group.*—This group is usually restricted to the small island where Townsend found it. Two small temporary nesting groups that have been observed near Harrington Harbour, one in 1924 and another in 1925, probably came from the Pointe au Maurier colony, but possibly from that in Mecatina Bird Sanctuary. On July 4, 1940, I counted, on the small island near Pointe au Maurier, 542 occupied or recently-used nests of Ring-billed Gulls, representing an adult breeding population of at least 1084.

4. *Mecatina Bird Sanctuary group.*—This group is very unstable. Sometimes it nests on an island in the eastern part of the sanctuary, sometimes on an island in the western part, while in some years we have not succeeded in finding its location. In 1940 it nested on an island in the eastern part of the sanctuary, where, on July 13, I counted 35 occupied or recently-used nests belonging to it, representing an adult breeding population of at least 70.

5. *St. Augustin Bird Sanctuary group.*—This group, as far as is known, was newly established in St. Augustin Bird Sanctuary in 1930. It then contained about 300 breeding birds. It increased and in 1932 was estimated to contain about 500 breeding birds. Subsequently its numbers fluctuated, but in some years were probably even greater than in 1932. In 1939, as will be explained later in this paper, it failed to nest in the usual area. In 1940 a careful search on July 17 revealed only 29 nests, representing an adult breeding population of 58.

6. *Belles Amours group.*—None of this group has been observed nesting elsewhere than on one of the islands called Flat Rocks, a short distance east of the entrance to Belles Amours harbor. On July 2, 1936, when I first visited this colony, I estimated that 200 breeding birds were included in it. In 1939 it suffered eclipse, to be described later in this paper. On July 19, 1940, I visited Flat Rocks, but could find no indication of nesting of Ring-billed Gulls there in that year. Re-establishment of the colony may yet occur.

The total number of adult breeding Ring-billed Gulls in the five colonies on the north shore of the Gulf of St. Lawrence that I found active in 1940 is at least 3538.

The six nesting groups that have been described above were all situated on the eastern part of the north shore of the gulf, distributed from the Kegaska River group (Long. 61° 20′W.) to the Belles Amours group (Long. 57° 21′W.), a distance of about 200 miles.

The islands on which these Ring-billed Gulls nest are usually of small to moderate size and twenty to sixty feet high. Like most of the abundant islands along this coast, they are granitic and treeless, but have a sparse vegetative covering of mosses, lichens, herbaceous plants and prostrate or semi-prostrate shrubs. The gulls often nest on grassy areas, but it is uncertain whether this is because they prefer such areas or because abundant deposit of their excrement, year after year, favors the growth of grass. Nettles, asters, and such coarse umbelliferous

plants as angelica and cow parsnip are also characteristic of long-established colonies of these gulls. They suit the gulls' requirements very well, for, early in the season, when space is needed for courting and nesting, these plants are too small to be in the way, but after midsummer, when young gulls are running around, they afford abundant dense cover, two or three feet high. On newly-occupied islands, Ring-billed Gulls often nest among prostrate or semi-prostrate shrubs that do not conceal nests or young.

Herring Gulls, Great-backed Gulls, and American Eider Ducks frequently nest on the same islands with the Ring-billed Gulls. The Ring-bills never scatter their nests over all the space available on an island, but crowd together in a compact group, leaving much of the island unoccupied by them. The larger gulls mentioned and the eiders tend to scatter their nests widely over an island with little or no regard to the situation of the Ring-bills, so that some of their nests are in the dense Ring-bill colony, but many are apart from them. The Fog Island group, in its shifting about, nests often, but not always, in company with a nesting group of twenty-five to fifty pairs of Caspian Terns. When they are together, the Caspian Terns occupy the summit and upper slopes of some smooth rocky knoll, partly covered with vegetation, while the Ring-billed Gulls nest close to the terns, but somewhat lower on the slopes. Both Arctic and Common Terns nest in the immediate vicinity of the nesting Ring-bills in the Kegaska River colony. Friction among these various species of gulls and terns, usually in the form of minor clashes about nesting territory, appears to be general, but seldom harmful.

Prior to the application of The Migratory Birds Convention Act to this region, the Ring-billed Gulls, in common with many other sea-birds nesting there, suffered much from human persecution, both their eggs and their young being used extensively for human food. The most favorably treated colonies were then those at Kegaska River and Pointe au Maurier, each of which nested near a single human family that took, it is true, a regular annual toll of the eggs, but that carefully left some eggs for the birds to hatch and that tried, with little or no support of law, to keep people from other places from interfering with them. For many years past, however, the Ring-bills of this coast, in common with most of the other birds nesting there, have benefited from active, organized governmental bird protection. Three of the nesting groups, those of Fog Island, Mecatina Bird Sanctuary, and St. Augustin Bird Sanctuary, commonly nest in official bird sanctuaries guarded by salaried resident caretakers, employed by the Canadian Department of Mines and Resources, although birds of the Fog Island group display an unfortunate tendency to nest fairly often on islands outside the sanctuary boundary. All of the Ring-bills along this coast receive protection during the nesting season from regular patrols made in motorboats by

government officers. Co-operation of conservation-minded private citizens resident in the region is also very helpful.

It may be remarked incidentally that, while Ring-billed Gulls and Herring Gulls, despite their difference in size, look so much alike at a little distance as to cause some difficulty in distinguishing them, they can, when they are vocal, be identified quite easily by their cries. It is true that, as might be expected in birds so nearly related, the various notes of the one species correspond quite closely to those of the other, but the cries of the Ring-billed Gull lack the volume and full-throated effect of those of the Herring Gull, so that in contrast they seem weak and hollow, while most of them are also much shriller. This difference has so impressed residents of the north shore of the Gulf of St. Lawrence that they always refer to Ring-billed Gulls by the local name, "Squeaky Gulls."

In general, the farther to the eastward a point on the north shore of the Gulf of St. Lawrence, the later the development of spring and the cooler the summer climate. Therefore the colony of Ring-billed Gulls at Kegaska River, being the westernmost colony of these gulls on that coast, experiences the earliest spring and usually the earliest laying of eggs. In favorable years, some eggs are laid in this colony in the last week in May, but most of the females begin to lay in the first week of June, while many do not begin until the second week of June. The Pointe au Maurier colony, some 75 miles northeast of Kegaska River, is usually slightly later in laying, and the St. Augustin colony, 85 miles farther northeast, is still later. Hatching in undisturbed nests takes place in late June or in the first half of July. Some young are able to fly before the end of July and very few Ring-bills remain at the nesting area after August 25.

The food of Ring-billed Gulls in this region in the nesting season consists largely of small fish, such as capelin and sand-launce. Wild berries, especially the fruit of the bog bilberry, are eaten in quantities after they ripen. Variations in the supply of small fish available in different years in the vicinity of the nesting colonies at the time when the young are dependent on their parents for food provide one of the principal factors restricting increase of these and other gulls in this region. When such small fish are lacking, the adult Ring-bills seem to be able to obtain enough clams, refuse from human fish-cleaning, and similar foods to provide for their own survival, but not enough to meet, in addition, the needs of their growing young. Faced with this situation, they increase the quantity of berries supplied to the young, but apparently the young cannot live long on such a diet, and a large proportion of them soon die. Some appear to die as a direct result of receiving insufficient nourishment, but a great many, after becoming weak from lack of nourishment, are killed by blows delivered by the adults. Human residents of the region often hold the view that the adult gulls thus intelligently meet a condition of food shortage by deliberately reducing

the number of young that they have to feed. It seems, however, more reasonable to suppose that scarcity of food tempts young gulls to trespass much more than usual on the territory of adults other than their parents and to try to compete actively for food that such adults bring to the colony for their own young. Adult Ring-bills, when irritated by such activities, commonly react by striking the offending young birds powerful blows with their beaks, with no attempt at moderation. Increase in trespassing and theft committed by the young, combined with weakness from insufficient food, which reduces their ability to escape, would thus naturally lead to an increase in the number of severe blows received by them from the adults, and thus to increased juvenile mortality. I have previously referred to this matter elsewhere[5, 6] and have recorded that 1932 and 1934 were both years when in this region young gulls had a high mortality rate attributed to scarcity of small fish, but that conditions in this regard were much more severe in 1935, when less than 10 per cent of the young gulls of the region were belived to have survived until they attained ability to fly.

In 1939 an exceptionally late spring caused the Ring-billed Gulls of this region another difficulty. The records of the Canadian meteorological station at Harrington Harbour, near the middle of that part of the coast on which Ring-billed Gulls nest, show that the mean temperature for May, 1939, was 36°F., which is two degrees below normal, and that the mean temperature for June, 1939, was 45°F., which is nearly two degrees below normal. A heavy snowfall had been experienced during the latter part of the preceding winter and snow remained on the land much later than usual. From a point a few miles east of Harrington Harbour eastward to the Strait of Belle Isle the sea was covered with closely-packed floe ice until June 17. When the Ring-billed Gulls of the north shore arrived, near the end of May, on their six nesting areas, they found conditions unsuitable for nesting. The groups at Kegaska River, Fog Island, and Pointe au Maurier, which are all southwest of Harrington Harbour, were able to make sufficient adjustment to meet this situation by nesting and laying eggs a few days later than usual, but the groups at Mecatina Bird Sanctuary, St. Augustin Bird Sanctuary, and Belles Amours, which are northeast of Harrington Harbour and on the part of the coast where floe ice remained until after mid-June, failed to make such adjustment.

A description of what occurred in the case of the group of these birds in St. Augustin Bird Sanctuary has been furnished by the Sanctuary Caretaker, Mr. J. Thomas Kennedy. He says that in 1939 the Ring-billed Gulls arrived at their nesting-ground in that sanctuary about May 26. It seemed to him that their numbers were greater than ever before. There was still much snow and ice on their chosen island, but there were also limited areas of bare ground. There was no open water in the vicinity. The Ring-bills stood about on their island, with much shrill crying, for several days. They built a few nests and laid a

few eggs, but all the eggs were promptly eaten by something, very likely a Raven. Mr. Kennedy saw a few fresh egg-shells lying about the nesting area, but never actually saw an entire egg. About a week after their arrival, all the Ring-bills suddenly left the vicinity. They did not return at any time during the summer of that year, nor were they discovered nesting elsewhere.

Concerning the groups pertaining to Mecatina Bird Sanctuary and Belles Amours it is known only that they arrived at their nesting grounds in the last week of May and left a few days later for parts unknown and were not seen again during the summer.

Apparently the physiological condition of these birds required nesting within a limited time—a time that, in this unusual spring, expired before conditions in their accustomed nesting areas had become such as to make their nesting there possible. Whether the unsuitability of the nesting area at the usual time for nesting consisted in the unusually low temperature itself, or in snow-covered nesting sites, or in the ice-covered sea, or in delayed arrival of fish required for an adequate supply of food, or in some combination of these conditions is not known.

This occurrence may be taken to indicate that possibly Ring-billed Gulls do not nest along the coast east or north of Belles Amours because a spring season developing a little later than is normal at Belles Amours fails to provide suitable nesting conditions in time to correspond with the physiological rhythm of these birds. Gradual modification of that rhythm to meet the conditions offered by a later spring may be theoretically possible but does not appear to have been made.

Within the limits of our present certain knowledge of the nesting-places of Ring-billed Gulls, the division of this species that forms the groups nesting on the north shore of the Gulf of St. Lawrence appears to be very isolated. The next nearest nesting colony of Ring-bills that is known with certainty is the one at Black Ant Island, Ontario, in the upper St. Lawrence River, more than 800 miles distant. There is, however, some evidence that seems to me to indicate that the isolation of the Ring-billed Gulls of the north shore of the Gulf of St. Lawrence may not be so great as our incomplete knowledge causes it to appear. The great and sudden fluctuations in numbers of some of the known nesting groups along the coast and the complete disappearance of the three eastern groups in the first part of June, 1939, when conditions on the coastal islands where they usually nest were adverse, both make it seem likely that the Ring-bills have other nesting-places not far away, in lakes in the southern interior of the Labrador Peninsula. It may be that the six nesting groups found along the coast are but outlyers of a widely distributed breeding population using chiefly inland sites. In this connection it is to be kept in mind that the Ring-billed Gull nests, for the most part, at sites in inland lakes, that the interior of the Labrador Peninsula contains a great many island-studded lakes, and that the summer climate of the southern part of the interior of that

peninsula is warmer than that of the coastal region inhabited by these gulls, which is cooled by a branch of the Labrador current. We have also to consider that Ring-billed Gulls have been reported by A. P. Low[7] and J. M. Macoun[8] as breeding at Lake Mistassini, Quebec, and that John Macoun and James M. Macoun[9] published a report, attributed to A. P. Low, that this species breeds in the vicinity of Hamilton Inlet, on the east coast of the Labrador Peninsula. According to the records of the National Museum of Canada, the latter report has reference to Northwest River, near the head of Lake Melville, Newfoundland Labrador, 110 miles inland, rather than to Hamilton Inlet. Both of these reports may be founded on fact, but Mr. P. A. Taverner, Ornithologist of the National Museum of Canada, informs me that he does not think the available evidence warrants their being accepted without reserve. Additional ornithological exploration is necessary before we can be sure we know in full the breeding range of the Ring-billed Gull in eastern Canada and in the mainland territory under the jurisdiction of Newfoundland.

From 1923 to 1939, inclusive, I have banded 2,122 young Ring-billed Gulls on the north shore of the Gulf of St. Lawrence. Forty-eight distant recoveries are now available in consequence of this work. They indicate that, after the young Ring-bills fly from the nesting colonies, they first scatter quite widely. In September some of them are to be found to the northeast, on the southern part of the Atlantic coast of Labrador, while others stray up the St. Lawrence River, sometimes nearly to Montreal. Apparently very few visit the Island of Newfoundland. In October there is a general movement southward, through New Brunswick, Prince Edward Island, Maine, Massachusetts, Connecticut, New York, and New Jersey. I have no reports from Nova Scotia. By November the foremost young Ring-bills have reached North Carolina and in December they are in Florida. Records indicating winter distribution of first-year birds are: one shot at Wyoming, Delaware, on January 18, 1930; one found dead at Mayport, Florida, on December 2, 1939; one killed at Jacksonville, Florida, December 24, 1925; one recovered at Pensacola, Florida, on January 16, 1934; one captured at Crystal River, Florida, on March 18, 1927; and one found dead at Columbia, Mississippi, on December 1, 1936. Only eight birds were reported when more than a year old. The oldest of these was a Ring-billed Gull banded in Fog Island Bird Sanctuary, Saguenay County, Quebec, on July 15, 1926, and captured at Seal Cove, White Bay, Newfoundland, on August 28, 1934, when a little more than eight years old.

Summary

The known history of the nesting colonies of Ring-billed Gulls on islands bordering the north shore of the Gulf of St. Lawrence, which are the only recorded colonies of this species on the Atlantic Coast of

North America, is briefly outlined.

Six distinguishable nesting groups of Ring-billed Gulls occurring in that region are described.

The total number of breeding Ring-billed Gulls recorded in these groups in 1940, when one group was not to be found, was at least 3538.

The manner of the nesting of these Ring-billed Gulls, their conservation, and their voices are briefly described.

The effects of periods of food scarcity and of an abnormally cold, late spring in reducing the reproductive success of these gulls and a possible relation between climate and their limit of range in this region are considered.

Indications that the breeding range of the Ring-billed Gull possibly includes part of the southern interior of the Labrador Peninsula are discussed.

A brief account of information about the migration and range of the Ring-billed Gulls of the Gulf of St. Lawrence that has been obtained as a result of banding 2,122 young in the colonies under discussion is provided.

References

1. Audubon, John James. Birds of America. Vol. 8, New York, 1839. (page 38).
2. Audubon, Maria R. Audubon and His Journals. Vol. 1, London, 1898. (page 402).
3. Frazar, M. Abbott. An Ornithologist's Summer in Labrador. *Orn. and Oöl.*, 12, No. 2, Feb., 1887: 18.
4. Townsend, Charles Wendell. In Audubon's Labrador. Cambridge, 1918. (pages 135–137).
5. Lewis, Harrison F. Notes on Birds of the Labrador Peninsula in 1931, 1932 and 1933. *Can. Field-Nat.*, 47, No. 6, Sept., 1934, :98–99.
6. Lewis, Harrison F. Notes on Birds of the Labrador Peninsula in 1934 and and 1935. *Can. Field-Nat.*, 51, No. 7, Oct., 1937, :100.
7. Low, A. P. Report on Explorations in the Labrador Peninsula along the East Main, Koksoak, Hamilton, Manicuagan, and portions of other rivers in 1892–93–94–95. *Geol. Surv. of Canada, Ann. Rept., N.S.*, 8 (for 1895). Ottawa, 1896: 323 L.
8. Macoun, James M. List of Birds Collected at Lake Mistassini, by Jas. M. Macoun, 1885. *Geol. & Nat. Hist. Surv. of Canada, Ann. Rept., N.S.*, 1, 1885, Montreal, 1886. Report of the Mistassini Exped. Appendix I, page 35 D.
9. Macoun, John, and James M. Macoun. Catalogue of Canadian Birds. Ottawa, 1909. (page 44).

Department of Mines and Resources, Ottawa, Canada

JOHN S. MAIN

BY ALDO LEOPOLD AND F. N. HAMERSTROM, JR.

JOHN S. MAIN died at his home in Madison, Wisconsin, on November 14, 1940.

His passing leads one to speculate on the criteria one uses to distinguish an outstanding ornithologist.

National figures like Audubon and Wilson are, of course, distinguished by their writings and paintings, for we of the rank and file have no other cognizance of them. Yet one finds, in some ornithological groups, individuals whose writings or paintings are limited, who hold no high office, who bequeath no considerable collections, but who are nevertheless recognized by all who know them as outstanding. Their earmark cannot be enthusiasm alone, for enthusiasm is common to our tribe. It cannot be skill and knowledge alone, for there are varieties of skill and knowledge of small import to anyone but their owner. It must be some as yet undefined combination of these ingredients which marks the outstanding naturalist.

Most vocations and avocations employ physical standards for measuring worth, but in ornithology, as in art or letters, the measure of a career is clearly some impalpable quality far removed from ordinary success. How else can we account for the pervasive influence of a man like John Main, who bequeaths to us only the memory of an intense and vivid personality, and the realization that a part of our own zest in birding and living is a gift from him?

John Main discovered birds at the age of thirty-five, and by himself. His youthful interest was mild and casual. Not until about 1914 did he become aware of the affinity between the world of field and fencerow, the world of natural history books, and the proclivities of his own scholarly mind. Within a decade he became an authority on birds of Wisconsin, the owner of a compact but fertile library, the leader of a growing ornithological group, and an eager student of the world literature of ornithology. By 1936 he had become a founder and president of the Kumlien Ornithological Club, and had specialized along two lines: the shorebirds as a group, and the study of bird behavior patterns, particularly the phenomena of migration and of mating displays.

It was hard for John Main, by nature a poet, to accept in toto the strongly mechanistic theories of bird behavior which now hold the center of the stage. He was an ardent (but not uncritical) disciple of the great bird-watcher, Selous. Hudson and Howard likewise held his allegiance, the first for his poetic prose, the latter for the nicety of his interpretations of field observations. No writer, however, was outside the reach of John Main's interest; he, as an amateur, knew the literature of birds as well as does many a professional ornithologist.

Despite the paucity of his published work, John Main was himself a writer of more than ordinary powers. His "Dance of the Prairie Chicken" is, in our opinion, the most accurate and colorful description of a booming ground so far published. His style combines a kind of victorian fluency with the reserve and the terse accuracy of the best "scientific" writing. Had he been spared for another decade, more papers of like quality would doubtless have followed.

To John Main, ornithology was a cause as well as a scientific field sport. Such problems as the protection of raptors and the preservation of rare species lay close to his heart. Every farmer who nailed a Redtail to his barn door drove a thorn into John Main's social conscience. He was the self-appointed custodian and trustee of every Sandhill Crane marsh and every Duck Hawk eyrie in the Madison region. Of such stuff, and of such only, can true conservation be built.

Living in a university town and in a state capital, John Main was in contact with many individuals occupying official positions in the natural history field, and also with many university students. It can, we believe, be fairly asserted that man for man, he contributed as much to the development of Wisconsin natural history and Wisconsin naturalists as those officially charged with this function. His influence is a monument to the spreading-power of that generosity of spirit which feeds on its own lack of material rewards.

Publications by John Main

Brewer's Blackbird nesting at Madison, Wisc. *Auk*, 43, 1926: 548.
Whistling of the Wilson Snipe. *Condor*, 30, 1928: 128–9.
Some 1930 notes from Madison, Wis. *Auk*, 47, 1930: 578.
Some notes on the fall migration of shore birds. *Wilson Bulletin*, 43, 1931: 150–1.
The influence of temperature on migration. *Wilson Bulletin*, 44, 1932: 10–12.
Migration dates of yellow-legs and others. *Auk*, 49, 1932: 82–3.
Shore birds at Madison, Wisconsin. *Auk*, 52, 1935: 323.
The dance of the Prairie Chicken. *Wilson Bulletin*, 49, 1937: 37–42.
Lapland Longspurs in Wisconsin in summer. *Auk*, 54, 1937: 546.
Relation of temperature to early migrants. *Wilson Bulletin*, 50, 1938: 190–193.
White-fronted Goose at Madison, Wisconsin. *Auk*, 56, 1939: 471.
Notes from Wisconsin. [Including Alberta Dowitcher, collected July 16, 1939; Cinnamon Teal, collected May 7, 1939; and nesting of the Wilson's Phalarope]. *Auk*, 57, 1940: 424–5.

424 University Farm Place, Madison, Wisconsin.

SEXUAL DIMORPHISM IN THE COWBIRD, MOLOTHRUS ATER

BY ALLAN J. STANLEY

THE study of the physiological basis of sexual dimorphism in birds has interested experimental biologists for a considerable time. The different control mechanisms employed within the class Aves and often by closely related species add interesting considerations to our general concept of phylogeny.

So far as the Icteridae are concerned there has appeared only one other paper which deals with an analysis of the differences between the sexes. Danforth and Price (1935), working with the Brewer Blackbird *(Euphagus cyanocephalus)*, found that the control of the feather pattern was entirely due to genetic factors and that the administration of hormones had no effect on the basic coloration.

Other authors have found the same condition to exist in widely separated groups. Still others have found that various hormonal relationships control the feather coloration in the two sexes. In some cases these are sex hormones, in others, hormones produced in the pituitary gland. Other cases are known wherein the control is partly genetic and partly hormonal.

The Cowbird exhibits marked sexual dimorphism in color pattern as well as in size. The male has a bronze head and neck, a jet black bill, dark brown iris, and a band of purplish black feathers surrounding the lower neck region and separating the bronze neck feathers from the greenish black plumage covering the remainder of the body. The breast and belly are also greenish black, while the wings and tail are not so prominently iridescent. In contrast to this striking plumage, the female has but a faint iridescence barely visible, when the light is right, on the dorsal feathers. Her plumage is gray with an almost white chin and generally light gray underparts. None of the color pattern described above for the male is apparent in the female. The iris of the female is a shade lighter brown than that of the male, while the beak is blue slate as compared to the jet black bill of the male.

According to our observations on birds kept in the laboratory for 20 months, Cowbirds do not assume a special nuptial plumage in either sex. Two complete moults have occurred during this time, each new plumage being exactly like that which preceded it.

In the wild state, during the summer months the feathers fade considerably. In captivity, when given adequate protection from the sun, the feathers retain their lustre for the duration of the plumage.

Oberholser (1938) gives a meager description of the Louisiana Cowbird, *Molothrus ater buphilus*, but records no measurements of females and no data on weights of either sex. While our

material may be referred to this subspecies on the basis of comparisons with specimens in the Louisiana State University museum, the difficulty of comparing living material with museum specimens renders the subspecific identity of our birds uncertain, and for the purposes of this paper it is probably unimportant. It is also entirely possible that these birds are migrants of the subspecies *ater*.

Material and Methods

During the latter part of January, 1939, about 150 Cowbirds were captured in a drop-door trap used principally for taking English Sparrows during the remainder of the year.

Six or eight birds were placed together in hardware-cloth cages which allowed approximately one square foot of perching space to each bird. The sexes were kept apart in some cases, but both males and females were kept together in others. The two sexes of the experimental groups were kept separately and were also separated from the controls. They were easily maintained on a balanced chick-mash diet with fresh water daily. They soon became adjusted to captivity, as evidenced by their song and quiet behavior. These qualities make the Cowbird a satisfactory laboratory bird in contrast with the English Sparrow or Red-winged Blackbird which in our experience never become tractable.

The birds were weighed as soon as they were captured and it was found that the males averaged about 50 grams, ranging from 42 to 65 grams. The females averaged about 40 grams, ranging from 35 to 45 grams.

Experiments

A series of males and females were castrated and parts of the sexually dimorphic tracts were plucked in the males along with the homologous tracts in the females. Depluming was performed at the time of castration and the regenerating feathers were observed.

In a second series, males and females were castrated, plucked as above and the plucked areas were swabbed daily for five consecutive days with theelin[1] in oil in the male castrates and perandren (testosterone propionate) in the female castrates. The regenerating feathers were noted. A series of normal males and females were plucked as above and served as controls. The results of these experiments[2] are listed below.

Examination of the results recorded in Table 1 shows that the female feathers in all cases regenerated the same type after castration as before. Perandren (testosterone propionate) had no effect. The male feathers

[1] We are indebted to Ciba Pharmaceutical Products, Inc. of Summit, N. J. for the perandren (testosterone propionate) and to Parke Davis Co., Detroit, Mich., for the theelin used in these experiments.

[2] Made with the technical assistance of J. A. Michaud and Harry Grubschmidt.

TABLE 1

CASTRATION EXPERIMENTS ON MALE AND FEMALE COWBIRDS

Sex	No.	Treatment	Feather regeneration
Male	5	Head, neck, breast, wing and tail plucked.	Normal with gray tips on breast feathers.
Male (castrate)	5	Head, neck, breast, wing and tail plucked.	Normal with gray tips on breast feathers.
Male (castrate)	5	Plucked as above and swabbed with theelin in oil.	Normal with gray tips on breast feathers.
Female	5	Head, neck, breast, wing and tail plucked.	Normal in each tract.
Female (castrate)	5	Head, neck, breast, wing and tail plucked.	Normal in each tract.
Female (castrate)	2	Plucked as above and swabbed with perandren (testosterone propionate).	Normal in each tract.

which came in after depluming were also alike in all homologous tracts; however, the new breast and saddle feathers in all cases came in with short gray tips which wore off in two months, leaving the normal feather. This seems to be a normal characteristic for these tracts in the male Cowbird, and is similar in this respect to the dark throat and breast tract of the male English Sparrow as figured by Miller (1935), except that the light tip is not nearly so long, does not mask the darker plumage beneath, and gives only a temporary mottled effect to the regenerated area.

The color of the irides of both sexes remained unchanged.

The bill color of 20-month castrates of both sexes is slightly lighter than that of controls, but no such striking change occurs as is found in castrates of the English Sparrow, in which the jet-black bill of the breeding male becomes light horn-colored after castration or after the quiescent testicular phase becomes established. (Keck, 1934; Witschi, 1936)

At the time of castration (from February 3 to March 1, 1939) the gonads were in the quiescent state. Testis weights were at the minimum and ranged from .6 mg. to 1.1 mg. for both glands. The gonads begin to enlarge gradually, however, at about this time, so that by April 15 they are from 50 to 100 times heavier than they were thirty to forty-five days earlier. Testis weights taken at this time ranged from 23.4 mg. to 108.4 mg. Captivity had no visible effect on the normal increase in size of the gonads. No singing was noted in the castrate birds, probably due to the low concentrations of the hormones used.

Conclusions

The Cowbird exhibits marked sexual dimorphism in both color pattern and size. The males were found to be 25 per cent heavier than females.

The color of male feather tracts is not suppressed by theelin, and likewise neither castration alone nor perandren (testosterone propionate) has any effect in female castrates.

Bill color of Cowbirds is only slightly affected by castration, and the color of the iris is unchanged.

Since the differences in the sexually dimorphic feather tracts of the two sexes of the Cowbird are not under the control of the sex hormones, sexual dimorphism in the Cowbird is considered to be determined genetically as was found for the Brewer Blackbird by Danforth and Price in 1935.

Literature Cited

Danforth, C. H. and John B. Price
1935 Failure of Theelin and Thyroxin to affect plumage and eye-color of the Blackbird. *Proc. Soc. Exp. and Med.*, 32: 675–678.

Keck, W. N.
1934 The control of the secondary sex characters in the English Sparrow, *Passer domesticus* (*Linnaeus*) *Jour. Exper. Zool.*, 67: 315.

Miller, Dorothea Starbuck
1935 Effects of Thyroxin on plumage of the English Sparrow, *Passer domesticus* (*Linnaeus*), *Jour. Exper. Zool.* 71: 293–309.

Oberholser, H. C.
1938 The Bird Life of Louisiana. *Bull. No. 28, Louisiana Dept. of Conservation.* (pp. 611–15).

Witschi, E.
1936 The bill of the Sparrow as an indicator for the male sex hormones. *Proc. Soc. Exp. Biol. and Med.*, 33: 484.

Department of Zoology, Louisiana State University, University, Louisiana

NOTES ON CUBAN BIRDS

BY DAVID E. DAVIS

THE following notes were collected during May to September, 1937, and during April to November, 1938, while I was studying the social nesting habits of the Smooth-billed Ani (*Crotophaga ani*). Unless another locality is indicated the notes pertain to the region near Cienfuegos, where most observations were made at the Atkins Institution of Harvard University.

The nomenclature of James Bond (1940) is followed strictly, even when there is a difference of opinion. This is emphatically not a list of the birds seen; many common or rare birds are omitted. The object is to add information concerning the breeding habits of some birds and the status of certain migrant species.

The ecological conditions of Cuba today are vastly altered from the primaeval. In many parts half or more of the land is covered with cane, in which only one bird, the Grassquit (*Tiaris*), nests regularly. The rest of the land is pasture or plots of rocky land from which every sizable tree is cut for charcoal. Clearly the number of species and individuals is greatly limited by the lack of suitable environment. In the Trinidad Mountains coffee is grown on nearly every slope, but since the plant needs shade it is grown under a canopy of trees providing a very suitable environment for many species. Hunting is greatly limited due to the strict prohibition of firearms and the cost of ammunition. A wise set of hunting laws is in effect, but enforcement is extremely difficult.

Frank M. Chapman (1892) collected birds at Trinidad, 40 miles to the east and M. Rutten (1934) spent some time in Santa Clara Province. Thomas Barbour's "Birds of Cuba" (1923) is the standard reference on Cuban birds. Recently S. C. Brunner (1938–39) has published data on migratory birds, chiefly from Havana.

It is a surprise to find that the birds are nearly as active in mid-day as in the early hours of the morning. Two factors enter into this mid-day activity. The variation in temperature between dawn and 2 P.M. is only 14° C., and there are only 14 hours of daylight at the most. Thus in order to find food the birds must keep active and do not need to rest. Since the night is long enough for necessary sleep, no "siesta" is needed.

Resident Species

Podilymbus podiceps antillarum. Pied-billed Grebe. Breeds throughout the year in suitable ponds. One young, nearly adult in size, seen May 26, 1938.

Casmerodius albus egretta. American Egret. About 15 non-breeding egrets slept in the Arboretum throughout each summer. Commonly the birds feed in the fields around cattle.

Florida caerulea. Little Blue Heron. Starts to breed in the middle of April and completes nesting about the first of August.

Plegadis f. falcinellus. Glossy Ibis. One spent the week of May 10, 1938, in the Arboretum. Four were seen on May 6 and five on August 27, 1938 at Laguna Grande.

Mycteria americana. Wood Ibis. Five seen October 12, 1938, on Rio Caunao.

Guara alba. White Ibis. Three seen May 6, 1938, at Laguna Grande.

Ajaia ajaja. Roseate Spoonbill. Fifteen seen at Laguna Grande and near the coast May 6, 1938.

Dendrocygna arborea. West Indian Tree Duck. Breeds in June and July. Lays about 9 eggs.

Aix sponsa. Wood Duck. Three spent the week of May 8, 1938, in the Arboretum.

Cathartes a. aura. Turkey Vulture. Young nearly the size of adults found on April 10, and a nest with one young just hatched found on May 5, 1938. The vultures are frequently seen around a large specimen of *Stapelia nobilis,* a plant whose flowers reek of the smell of rotten meat.

Polyborus cheriway audubonii. Audubon's Caracara. Pair seen May 6, 1938.

Falco sparverius dominicensis. Sparrow Hawk. This species occurs in the light and red phases with some intermediate birds. Pairs composed of one member of each phase are common. Of the birds counted, 28 were in the light phase, 12 in the red, and 5 in the intermediate color.

Fulica a. americana. American Coot. A dozen seen at Laguna Grande May 6, 1938.

Jacana spinosa violacea. Central American Jacana. Two fully grown immature birds seen April 8, 1938. A nest with four eggs found September 25, 1938.

Zenaida m. macroura. Mourning Dove. This species begins to breed in March and continues till the first of October. About the middle of June the birds begin to roost in large flocks. The birds often use the same nest for several broods, and in one case used an old nest of *Mimus polyglottos orpheus.*

Aratinga euops. Cuban Paroquet. Flocks come down from the Trinidad Mountains occasionally in September and October.

Coccyzus a. americanus. Yellow-billed Cuckoo. A flock of ten was seen August 8, 1937. Many seen in May, June, and July, 1938, but none was seen in the spring of 1937. Two females collected on July 1, 1938; each had its ovary in breeding condition.

Chordeiles minor gundlachii. West Indian Nighthawk. This subspecies arrives about the middle of April and leaves in August.

Nephoecetes n. niger. Black Swift. A swift, considered to be this species, was abundant at San Blas, Trinidad Mountains, May 24, 1938. No specimen was collected.

Streptoprocne zonaris pallidifrons. Cloud Swift. Common in June and July flying over the fields. Several flocks of more than one thousand birds were seen.

Colaptes c. chrysocaulosus. Cuban Flicker. Common in the Trinidad Mountains.

Tyrannus d. dominicensis. Gray Kingbird. Incubation period is 14 days, and the young remain in the nest for 17 days. Two birds were seen October 10, 1938, but most individuals leave before that date for the south.

Corvus leucognaphalus nasicus. White-necked Crow. Four seen on September 9, 1937, in the foothills of the Trinidad Mountains.

Mimus polyglottos orpheus. Cuban Mockingbird. Of a total of 18 nests, 12 contained three eggs, and 6 contained four eggs. The incubation time is ten days, and the birds leave the nest after 8 to 13 days. Many nests are destroyed by snakes. The following species are mimicked in song: *Tolmarchus c. caudifasciatus, Crotophaga ani, Colinus virginianus, Tyrannus d. dominicensis,* and *Falco sparverius dominicensis.*

Holoquiscalus niger gundlachii. Greater Antillean Grackle. Nests in colonies in trees, beginning about the first of April. Nesting is over by the middle of June and the birds spend the rest of the year in large flocks.

Agelaius h. humeralis. Tawny-shouldered Blackbird. This species spends most of the year in flocks but separates into pairs for nesting.

Tiaris o. olivacea. Yellow-faced Grassquit. The flocks break up in the middle of May, when the pairs start to breed. The male frequently builds abortive nests.

Migrants

Cuba is the winter home of many North American species. The following notes on migration were collected from May 8 to September 12, 1937, and from April 8 to October 15, 1938. The first date given is the latest date on which the species was seen in spring, and the second date is the earliest date on which the species was seen in the fall migration. The dates are given only for those species which were seen with sufficient frequency to indicate the migration period.

The warblers are the most abundant migrants and arrive in waves several days apart. A wave of warblers arrived with a cool spell from October 2 to 5, 1938. The relative number of individuals arriving was: October 2 twenty-four; October 3 nineteen; October 4 thirty-nine; October 5 nineteen; October 6 three; October 7 thirteen; October 8 twelve.

Childonias nigra surinamensis. Black Tern. Five seen August 8, 1938.

Chordeiles minor subsp. Nighthawk. One was seen on September 9, 1937. Since the Cuban birds had been gone a month, this bird was probably a North American migrant.

Megaceryle a. alcyon. Belted Kingfisher. Tolerably common. April 29, 1938; September 2, 1937.

Dumetella carolinensis. Catbird. April 21, 1938.

Polioptila caerulea. Blue-gray Gnatcatcher. August 13, 1938. Not seen in April or May in either year.

Compsothlypis americana pusilla. Parula Warbler. April 28, 1938; September 5, 1938.

Dendroica c. caerulescens. Black-throated Blue Warbler. April 28, 1938; September 2, 1938. This species is extremely tame and enters houses frequently.

Dendroica dominica. Yellow-throated Warbler. April 15, 1938; August 12, 1938.

Dendroica discolor. Prairie Warbler. April 19, 1938; August 16, 1938.

Dendroica palmarum. Palm Warbler. May 6, 1938; September 14, 1938.

Seiurus aurocapillus. Ovenbird. April 23, 1938; September 10, 1938. A single individual was seen on May 20, 1937. The true migration is indicated by the dates.

Seiurus noveboracensis. Northern Water-thrush. May 7, 1938; July 27, 1937. A single individual was seen July 8, 1938, but it was probably a non-breeding bird. Two were heard singing on August 20, 1938.

Seiurus motacilla. Louisiana Water-thrush. October 4, 1938.

Geothlypis trichas. Common Yellow-throat. May 12, 1938; September 5, 1938.

Setophaga ruticilla. American Redstart. May 13, 1937; August 6, 1937. The adults arrive in the fall about two weeks after the immatures. Individuals started to sing April 20, 1938.

Dolichonyx oryzivorus. Bobolink. May 10, 1938.

REFERENCES

BARBOUR, THOMAS

1923 The birds of Cuba. *Mem. Nuttall Ornith. Club*, 6.

BOND, JAMES

1940 Check list of birds of the West Indies.
Academy of Natural Sciences of Philadelphia, 184 pages.

BRUNNER, S. C.

1938–39 Datos sobre la migración de aves en Cuba.
Mem. Soc. Cubana Hist. Nat., 12: 167–179, 355–366; 13, 21–30.

CHAPMAN, FRANK M.

1892 Notes on birds and mammals observed near Trinidad, Cuba, with remarks on the origin of West Indian bird life. *Bull. Amer. Mus. Nat. Hist.*, 4: 279–330.

RUTTEN, M.

1934 Observations on Cuban birds. *Ardea*, 23: 109–126.

721 ELMWOOD AVENUE, WILMETTE, ILLINOIS

CHECK-LIST OF BIRDS OF THE WEST INDIES. By James Bond. The Academy of Natural Sciences of Philadelphia. 1940 (published July 25): 6 x 9 in., xi + 184 pp., map. $2.00.

This very useful check-list incorporates a large amount of data within a few pages. Under each form the author gives a reference to the original description and to synonyms, if any, published since the first three volumes of Peters' "Check-list" and parts 2–13 of Hellmayr's "Catalogue." The range is stated in some detail. A very worthwhile feature, especially in a region in which there is a high degree of endemism and in which many forms are gradually being exterminated, is a statement of the occurrence and abundance of nearly every bird, based mainly upon the author's own experience in the field. Appendices list birds known only from subfossil remains, species known only from hearsay, and introduced forms. Of considerable interest are the numerous comments on the probable relationships of various birds, as suggested by similarity of voice and breeding behavior. The author takes a moderate stand in the matter of recognition of genera and species, and he even does not hesitate to synonymize some of his own races.

Bond recognizes 692 forms of birds as occurring in the West Indies. In 1892 Cory listed 585 forms from the same area, so that approximately 100 birds have been added within the last 50 years. This increase is partly due to the description of new subspecies and partly to the collecting of North American migrants. Very few actual "discoveries" have been made, however, since only five or six full species have been added during that period. In the author's words, "it may be said that systematic study of West Indian birds is almost completed."

This book is indispensable to anyone interested in the distribution of West Indian birds.—P. Brodkorb.

GENERAL NOTES

American Egrets Observed from a Hudson River Steamer.—Since the late summer of 1937 when the American Egret *(Casmerodius albus egretta)* apparently reached the peak of its abundance in the Albany, New York region, we have been interested in the local status of this striking bird during the post-breeding season. While our observation dates are fairly uniformly distributed throughout late summer and early autumn, our longest and most satisfactory single period occurred on August 27, 1940.

In an effort to ascertain more precisely the number of egrets along the upper Hudson River, Mrs. Stoner and I engaged passage on the largest passenger steamer regularly plying between Albany and New York City. However, our voyage included only that part of the river between Albany and Kingston Point, a distance of 48 miles. The outward trip began with departure from Albany at 9:20 A.M. and ended at 1:20 P.M. on an incoming tide which reached its height about noon. The return trip from Kingston began at 2:20 P.M. and ended at 6:20 P.M. on an outgoing tide which was lowest upon arrival in Albany. The day was partly cloudy and a light southerly wind prevailed. Temperature at start 65°F.; barometer 30.15″. All observations were made from the upper deck of the vessel, approximately 30 feet above the water. The average speed of the boat was about 15 miles an hour with stops *en route* at Hudson, Catskill, and Saugerties.

On the trip down river 45 American Egrets were noted at 14 different points between Coxsackie and Saugerties, a distance of approximately 20 miles. The birds were not seen north of the former nor south of the latter town. Single individuals were noted at 5 points; the largest group consisted of 8 individuals; other aggregations comprised one group of 7 and two groups of 5 and 4 individuals, respectively. Thirteen of the birds were on the east side of the river, 32 on the west side.

The greatest concentration of egrets occurred in the vicinity of Hudson and Catskill. It is here also that the most extensive, shallow, reedy flats occur. At low tide they are more or less exposed and offer favorable feeding grounds for these herons and their allies. A few of the egrets were perched in trees at the water's edge but most were standing in the shallows among the rushes. Boat traffic on the river gave them no concern. At Catskill one bird unconcernedly preened itself a few yards from a man working on a garbage dump.

On the trip up-river from Kingston Point to Albany, 93 American Egrets were noted at 15 different places between a mud flat three miles south of Saugerties and the village of Stuyvesant, a distance of approximately 25 miles. Egrets were not observed south of the former nor north of the latter observation points. Single individuals were noted at only two places; the largest group consisted of 15 individuals; other aggregations comprised single groups of 14, 12 and 10 individuals, two groups of 9 each, a group of 8, two groups of 3 each and four groups of 2 each. Seventy-nine of the birds were on the east side of the river, 14 on the west side.

As on the morning trip, the greatest concentration of egrets occurred in the Hudson-Catskill area; less than one-third of the observed population occurred outside those limits. It will be noted also that the gregarious tendencies of these birds are maintained even in their post-season wanderings. In only seven instances were single individuals observed, while in 16 instances three or more egrets were resting or feeding in close proximity to one another.

In all probability at least some of the American Egrets observed by us on the morning and afternoon trips were duplicates; just how many fall in this category it is, of course, impossible to state. However, we believe that we are within the limits of conservatism in stating that well over 100 different individuals were observed by us during the course of the day.

A brief summary of our observations on the American Egret in the Albany region, 1937 through 1940, may now be appropriate. Each season begins with the date on which the first individual was noted and closes with the last date on which the species was recorded: August 1 to October 12, 1937, 16 observation periods totaling 28½ hours, 112 individuals; August 10 to October 14, 1938, 14 observation periods embracing 16½ hours, 51 individuals; July 30 to September 16, 1939, 13 observation periods covering 9 hours, 58 individuals; and July 19 to October 9, 1940, 15 observation periods comprising 23½ observation hours, 234 individuals.

We believe that the data here presented together with other information at hand provide sufficient evidence to warrant the following conclusions. First, while the numbers of the American Egret in eastern New York fluctuate somewhat from season to season, a general increase in the abundance of post-breeding individuals has become evident in recent years. Second, the main flyway from which dispersal occurs in the "Capital District" (roughly, the district within a 25-mile radius of Albany) is the Hudson River. The basis for this statement lies in the fact that the egrets in that territory first appear on the lower reaches of the Hudson; later a few are found along the Mohawk River and in other streams and ponds in the vicinity. However, dispersal of the birds into the surrounding territory was less marked in 1940 than in the three preceding seasons. Third, a definite concentration point occurs in the Hudson-Catskill area where extensive mud flats suitable as feeding grounds are exposed at low tide; bordering swampy woodlands offer attractive resting and roosting places.

In view of this combination of favorable circumstances we should not be surprised to find or to learn of a nesting of this fine heron along the lower Hudson in the not too distant future.—DAYTON STONER, *New York State Museum, Albany, New York.*

The Ring-necked Duck in Southeastern Alaska.—The morning of February, 27, 1940, at Petersburg, Southeastern Alaska, I saw four female Ring-necked Ducks *(Nyroca collaris)* at a distance of about ten yards. The lack of white on the wings was plain, even without glasses; four-power field-glasses made the light ring around each bill distinct. The birds were in a mixed flock of numerous other species that were diving and tipping among the piles and rocks along the beach.

To the best of my knowledge, the only previous record for the Ring-necked Duck from Southeastern Alaska in a flock of twenty-five birds observed by A. M. Bailey in Kootznahoo Inlet on October 27, 1920. (*Auk*. 44, 1927:187). —J. DAN WEBSTER, *Laboratory of Ornithology, Cornell University, Ithaca, New York.*

Bald Eagle Killed by Lightning While Incubating Its Eggs.—On December 26, 1940, Dr. A. A. Allen and the writer visited a nest of the Southern Bald Eagle (*Haliaeetus l. leucocephalus*) which was 6½ miles south of Wilson on Merritts Island, Brevard County, Florida. The nest was 45 feet up in a large, living, long-needled pine standing in a small, open grove of pines growing among the low palmettos which cover most of this section of the island. Close scrutiny of the nest with binoculars disclosed the tail of an eagle protruding above the rim of the nest. Going to the nest we attempted in numerous ways to flush the parent from the nest but were unsuccessful. Lightning had recently struck the tree and it seemed probable that this had killed the bird on its nest.

The writer climbed the tree on December 29 and found a dead adult eagle with wings slightly spread lying over the hollow of the nest. In the depression beneath the dead parent was an egg which had a punctured shell. A second egg was found

lodged in the outer rim of the nest, its shell being intact. The damaged egg beneath the bird, the position of the second egg, and the partially opened wings of the adult suggest that it was not killed instantly but struggled some before dying.

A careful examination of the carcass failed to show any evidence that the bird had been shot as it sat on its eggs. There were no wounds found nor was there any blood on the plumage. No direct evidence of the effect of the lightning was discovered on the body of the bird.

As nearly as could be determined the death of the eagle and the striking of the tree occurred at the same time. Both events had taken place about three or more weeks before. Internal decomposition of the bird was evidenced by the strong odor, yet the skin was intact except in the region of the anus. The eyes were dried up and considerably sunken. The broken egg beneath the bird was spoiled and part of the contents gone. Much of the bark of the tree had been torn from the limbs immediately above the nest and the trunk just below the nest had been fractured by the lightning. From these wounds considerable pitch had oozed and it was in the form of gummy drops instead of the liquid state characteristic of fresh pitch.—JOSEPH C. HOWELL, *Contribution No. 79, Zoological Laboratory, Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma.*

Goshawk Nesting in Michigan.—A nest of the Eastern Goshawk *(Astur atricapillus atricapillus)* was discovered June 17, 1940, by Porter one quarter mile from the northeast shore of North Fishtail Bay, Douglas Lake, Michigan, in the forested Bogardus Tract of the University of Michigan Biological Station, located about 9½ miles southwest of the city of Cheboygan. Attention was drawn to the nest by the shrill cries of the adult female.

The nest was located in a dead poplar tree in an area consisting of a thick growth of cedar, sugar maple, black spruce, balsam, birch, balsam poplar, and poplar. The area was generally rather low and damp, indicating perhaps a filled-in beach pool of Douglas Lake.

Built in a double-branched fork against the trunk of the tree, the nest was 30 feet, 4 inches above the ground. Measurements were as follows: Outside diameter, 2 feet, 6 inches; inside diameter, 1 foot, 4 inches; outside depth, 1 foot, 6 inches; inside depth, 3 inches. The nest was made of dead branches lined with green tips of cedar and balsam.

As soon as the nest was identified, cleats were nailed to a nearby tree and observations by the writers were started. While the cleats were being spiked to the tree, the female protested vigorously by swooping down upon us. She actually struck us with her wings on several occasions.

When we looked into the nest from the observation tree, we found two downy young crouching very quietly in the cup of the nest.

During the early morning hours we usually found the female absent, but when we neared the area about 10 A.M. or thereafter, her presence was always indicated by her shrill cries and aerial attacks. The male was never observed at the nestside, but at times was attracted to the vicinity of the nest by the female's alarm notes. He would then add his higher pitched calls to those of the female and join in the attacks.

One young bird disappeared from the nest on June 29 but the cause was unknown. The remaining young bird left the nest July 28 but remained in the area for sometime, being seen as late as August 28.—T. WAYNE PORTER, *Oak Harbor, Ohio,* and HARRY H. WILCOX, JR., *Department of Zoology, University of Michigan, Ann Arbor, Michigan.*

Other Records of Snow-killed Bob-white Coveys.—In a note in the last *Wilson Bulletin* (December, 1940:280) the writers asserted that "few snow-killed coveys have been recorded." Dr. A. W. Schorger has called our attention to the following instances recorded from Wisconsin:

"I remember a particularly severe Wisconsin winter, when the temperature was many degrees below zero and the snow was deep, preventing the quail, which feed on the ground, from getting anything like enough of food, as was shown by a flock I found on our farm frozen solid in a thicket of oak sprouts. They were in a circle about a foot wide, with their heads outward, packed close together for warmth." (John Muir, "The Story of my Boyhood and Youth", N.Y., 1913, p. 134).

"Since, there has been a cold winter when many quail froze in their roosting places; hundreds were thus frozen in bunches of ten to fifteen." (P. R. Hoy, *Proc. Wis. Nat. Hist. Soc.,* March, 1885:8) The word "since" appears to refer to the winter of 1849-50.—ROBERT MCCABE and ALDO LEOPOLD, *University of Wisconsin, Madison, Wisconsin.*

An Unusual Condition in a Ring-necked Pheasant.—On December 19, 1940, a sick male pheasant (*Phasianus colchicus torquatus*) was brought to the Wildlife Laboratory at University Farm in St. Paul, by Karl Kobes of the Mud Lake National Wildlife Refuge. The bird was easily captured on the refuge the day before. It was extremely emaciated (640 grams) and was so weak that it could not right itself without assistance. Response to stimuli, whether food or other, was slow and since it seemed only a matter of a few hours before it would perish, the bird was killed to determine the cause of the sickness.

A post-mortem examination in both the Wildlife Veterinary Diagnosis Laboratories revealed no external evidence of injury and nothing of significance except that the proventricular mucosa was heavily impregnated with the retrorsely barbed awns of *Bidens cernua,* a composite that grows abundantly in moist low places in the northwestern part of the state. The achenes of this species are armed with four, long, barbed awns.

Microscopic sections showed that some of the awns had pierced the muscular layers through to the visceral peritoneum. It is possible that the irritation by the spines during the peristalsis induced by the intake of food would cause the bird such pain and discomfort that it would refrain from feeding and eventually starve to death even though there was plenty of food available.

Achenes of the various *Bidens* species are all armed with barbed awns, which if taken in sufficient quantity in the absence of other foods may be harmful to a gallinaceous bird such as the Ring-necked Pheasant. The condition described, however, is rare for in the writer's study of the food habits of over 650 Minnesota pheasants, only five birds were found to contain small quantities of these achenes and awns mixed with other foods.—LOUIS A. FRIED, *Game Biologist, University of Minnesota and State Division of Game and Fish, St. Paul, Minnesota.*

Burrowing Owls Eat Spadefoot Toads.—Spadefoot toads (*Scaphiopus*) occur in much of the range of the Western Burrowing Owl (*Speotyto cunicularia hypugaea*) but their remains have not been found in the stomachs of Burrowing Owls examined in the research laboratories of the Fish and Wildlife Service of the U. S. Department of the Interior. Furthermore, the writer has found no reference in literature to spadefoots as an item in the owl's food. Disclosures in a recent examination of a large series of Burrowing Owl pellets are, therefore, of special interest. The material in question was part of a collection made in June, July, and August of 1937, 1939, and 1940 by Dr. William L. Jellison of the U. S. Public Health Service, Hamilton, Montana.

Detailed analyses of these pellets revealed the usual abundance of beetles, crickets, grasshoppers, and small mammals, along with an occasional bird, but also disclosed spadefoot toad remains in pellets from six counties in four states. Of the 35 pellets from 2 owl burrows in Beaverhead County, Montana, and the 345 pellets from 8 burrows in Okanagan, Whitman, and Yakima counties in Washington, all collected in June or early July, 9 per cent contained *Scaphiopus* remains. Spadefoot bones composed 30 per cent of one of the 8 pellets picked up in Prowers County, Colorado, on August 20 and were present in every one of the 9 pellets collected in Clark County, Kansas on the same day. A frequency of occurrence of 11 per cent (43 in 397 pellets) for an item not previously listed in the diet of Burrowing Owls is most unexpected, especially when recorded from material collected in widely scattered localities over a three-year period.—CHARLES C. SPERRY, *U. S. Fish and Wildlife Service, Denver, Colorado.*

Attack on Buffalo by the Magpie (*Pica pica hudsonia*).—Several notes have been published on the attacking of livestock by the Magpie (A. W. Schorger, *Auk*, 38, 1921: 276; T. C. Stephens, *Auk*. 38, 1921: 458; S. S. Berry, *Condor*, 24, 1922: 13; W. P. Taylor, *Auk*, 40, 1923: 126). The trait of attacking live animals is very old apparently and started with the buffalo. T. G. Anderson (*Coll. Wis. Hist. Soc.*, 9, 1882: 167) spent the winter of 1809–10 at Lac Qui Parle, western Minnesota. He shot an old buffalo against the advice of his companions who stated that it was scabby and worthless. He states further: "On examination, it was found that his back and the upper part of his sides were a mass of scabs and blood, where the magpies and other carniverous birds had pecked and fed, as they do when these animals become too old and feeble to defend themselves."—A. W. SCHORGER, *168 North Prospect Ave., Madison, Wisconsin*

Starlings in Central Colorado.—The first record for the Starling, *Sturnus vulgaris,* in Colorado was taken by Rockwell (*Wilson Bull.,* 51, 1939: 46) on December 17, 1938, at the Mile High Duck Club, about fifteen miles northeast of Denver. These first birds were seventy-five or one hundred in number. Since then scattered individuals and small flocks have been seen in and about Denver.

After a long and thorough search of the Pikes Peak region, seventy miles south of Denver and in east-central Colorado, I found eight Starlings at the Johnson Reservoir, ten miles south of Colorado Springs, on January 26, 1941. It is interesting to note that these birds sought the same sort of locality as did the Mile High birds, although they had to pass a major city to find it: an area of farm buildings near small sloughs and marshes and a large reservoir, and fields under cultivation or semicultivation. Significantly, there are no such areas of importance between the Denver area and the Johnson Reservoir.

As at the Mile High Duck Club, these Starlings were associated chiefly with Red-wings. In fact, this association may have led to an interesting call which one Starling gave. As I approached it, and while I had not yet gotten the flock into the air, this "look-out" uttered a number of Red-wing call notes. So realistic was the imitation that I might easily have passed him by entirely. It was more than a half-hour before I heard any typical Starling notes from the flock. In the meantime they were exceedingly hard to approach, but when left alone quickly returned to feeding with Meadowlarks and Red-wings.—Sam W. Gadd, *1331 North Weber Street, Colorado Springs, Colorado.*

Clay-colored Sparrow in Ohio.—A specimen of the Clay-colored Sparrow (*Spizella pallida*) taken on South Bass Island, Ottawa County, Ohio, on May 12, 1940 is noteworthy in that it apparently represents an addition to the avifauna of the state. When first observed early in the morning the bird was feeding in company with a group of warblers in a small hackberry tree near the lighthouse at the southern tip of the island. Late in the afternoon the bird was collected by Mr. Kenneth H. Doan and myself in a chokecherry thicket within two or three rods of the tree where it was first seen. The specimen proved to be a male with moderately enlarged gonads (5.2 x 3.3, 5.4 x 3.8 mm.) and weighed 10.9 grams. The central pair of rectrices had been recently renewed and were not fully grown. The skin has been deposited in the collection of the Ohio State Museum at Columbus.—Charles F. Walker, *Stone Laboratory, Put-in-Bay, Ohio.*

Nesting Bluebirds of Nashville—a Correction

We find an error in our article on "The 1939 Nesting Season of Bluebirds at Nashville, Tennessee" as it was published in a recent *Wilson Bulletin* (52, No. 3, September, 1940:183–90). In the last line of both Table 1 and Table 2 the word "hatched" should be replaced by the word "fledged".—Amelia R. Laskey.

EDITORIAL

Miles D. Pirnie, Chairman of our Wildlife Conservation Committee, has asked to be relieved because of the pressure of his other work. Therefore President Hicks has appointed Frederick N. Hamerstrom, Jr. to succeed him but, fortunately, has persuaded Dr. Pirnie to continue as a member of the committee.

We are trying to make up a list of all complete sets of *The Wilson Bulletin*, whether in private hands or in public libraries. The number is apparently very small. If you have or know of a set which is complete or nearly so, please send the Editor a card with this information.

The Editor's office is increasingly becoming a clearing house for information on current research projects in ornithology. A number of times this exchange of information through our office has prevented duplication and has put research workers with similar interests in touch with each other.

Would it, perhaps, be desirable to print regularly in the *Bulletin* lists of studies in progress? Such lists would of course be carefully restricted to genuine projects already undertaken—not merely planned. Please send the Editor your opinions on this.

The next annual meeting of the Wilson Ornithological Club is scheduled for November 21 to 23 at Champaign-Urbana, Illinois, on the campus of the University of Illinois. The meetings will be held in Gregory Hall and expectations are that the Illini Union Building will serve as convention headquarters. Both of these buildings are new, being used for the first time during the present school year. The following organizations and their representatives will serve as sponsors of the meeting and as the Local Committee: S. C. Kendeigh (Chairman) and H. H. Shoemaker of the Department of Zoology, R. E. Yeatter and A. S. Hawkins of the Illinois State Natural History Survey, L. A. Adams of the Museum of Natural History, Mrs. A. F. Satterthwait and Mrs. R. R. Snapp of the Champaign-Urbana Bird Club, R. W. Fautin of the Ecology Club, and E. J. Koestner of the Wildlife Club.

OBITUARY

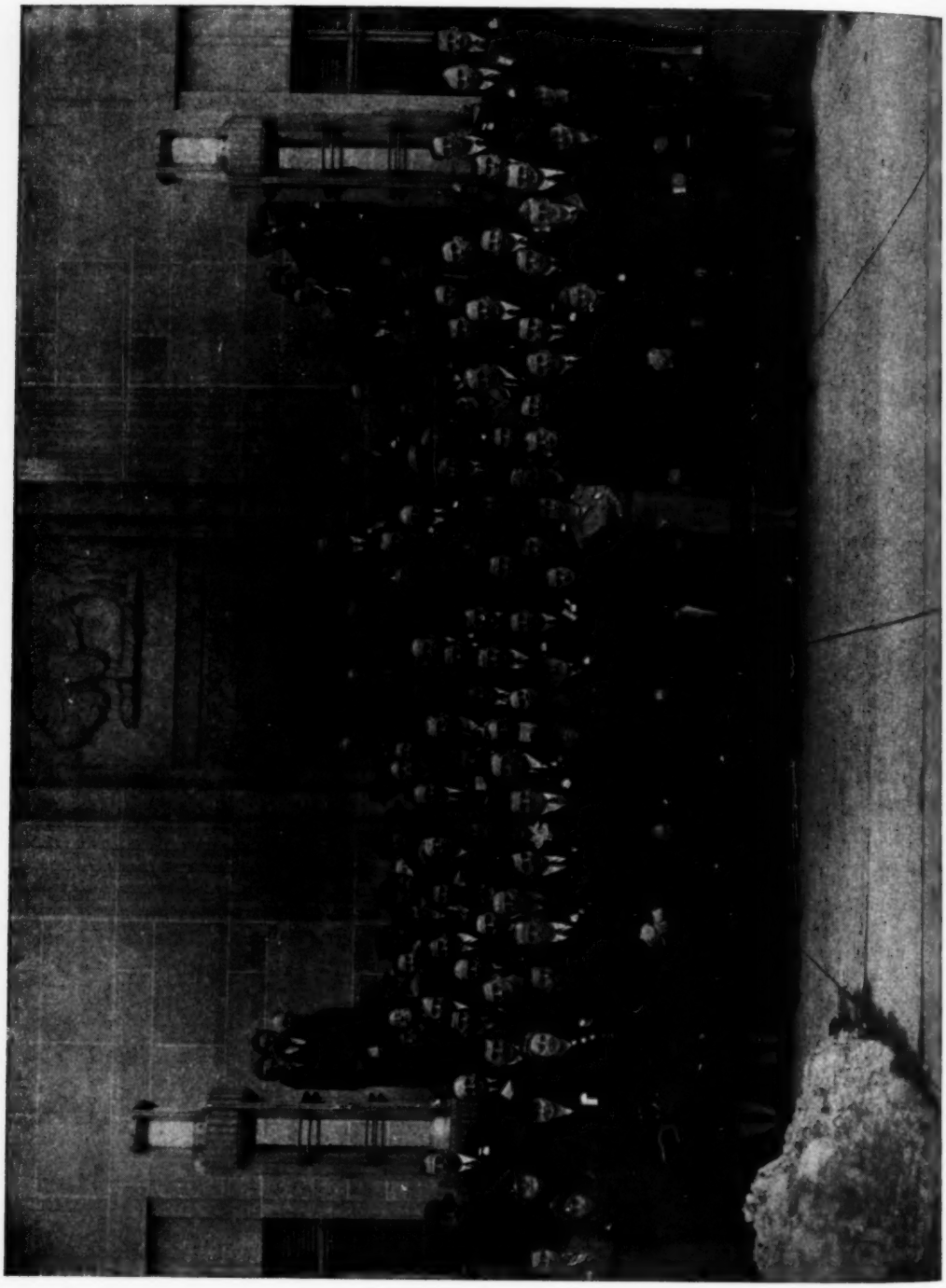
H. Eliot Howard, the famous student of bird behavior and author of "Territory in Bird Life" and other classic works, died on December 26, 1940.

Samuel E. Perkins III, one of the leading ornithologists of Indiana, died in Indianapolis on January 31, 1941. He had been a member of the Wilson Ornithological Club for eighteen years and served as its Treasurer very faithfully and effectively from 1936 to 1938.

W. Otto Emerson, pioneer ornithologist, died in California on December 24, 1940 at the age of eighty-five.

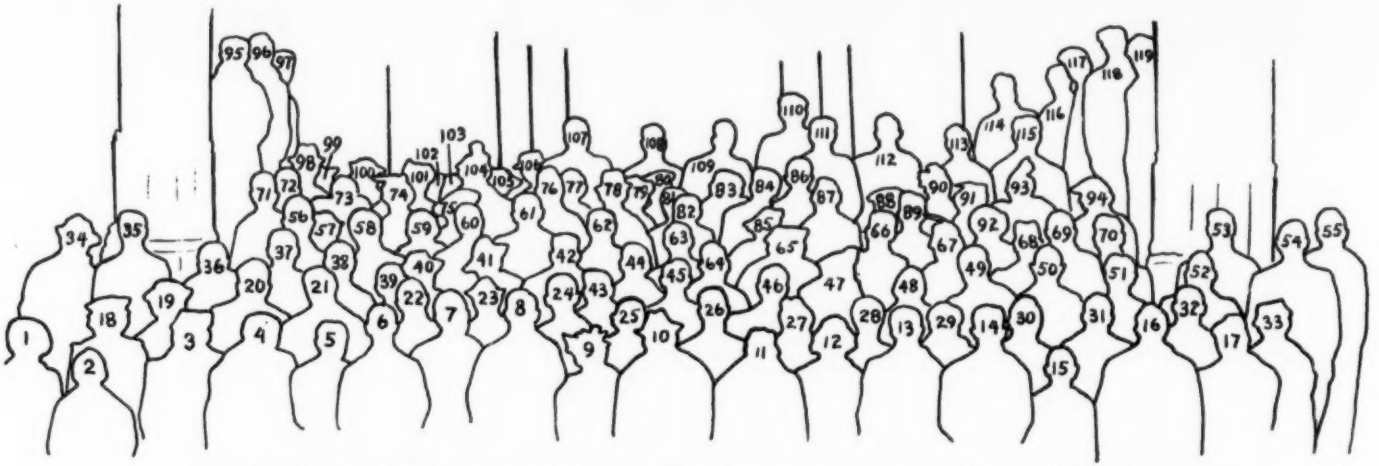
G. Kingsley Noble died in Englewood, New Jersey, on December 9, 1940, at the age of forty-six. His first ornithological papers were based on field work which he did for Harvard University in the West Indies, Newfoundland, and Peru. His latest papers were important contributions to the experimental study of bird behavior.

Joseph Beal Steere, noted explorer and naturalist, died in Ann Arbor, Michigan on December 7, 1940 at the age of ninety-eight. His expeditions between 1870 and 1888 resulted in the discovery of many new birds and new facts on their distribution, especially in South America and the Philippine Islands.



Group at the Annual Meeting, Minneapolis, November 23, 1940

Group at the Annual Meeting, Minneapolis, November 23, 1940



KEY TO THE WILSON ORNITHOLOGICAL CLUB GROUP PHOTOGRAPH AT MINNEAPOLIS, 1940

1, Mrs. Frank Bohn. 2, Lawrence Bohn. 3, Mrs. Rollo H. Wells. 4, Mrs. G. R. Magney. 5, Miles D. Pirnie. 6, George B. Thorp. 7, Earl G. Wright. 8, Lawrence E. Hicks. 9, Mrs. Thomas S. Roberts. 10, Thomas S. Roberts. 11, Catherine J. Wood. 12, Peggy Muirhead. 13, Earl Mitchell. 14, B. W. Baker. 15, Donald Baker. 16, Edwin T. Nelson. 17, Theodora Nelson. 18, Mrs. B. F. Myers. 19, Mrs. Harry W. Rice. 20, Murl Deusing. 21, John L. George. 22, Maurice Brooks. 23, Mrs. F. W. Haecker. 24, A. F. Ganier. 25, Janet Buscho. 26, Hugh R. Engstrom. 27, Mrs. Clair T. Rollings. 28, Dorothy Mierow. 29, Eleanor G. Cooley. 30, David Damon. 31, Eugene Castle. 32, Harry H. Wilcox, Jr. 33, Margaret Drum. 34, Max L. Partch. 35, Thomas M. Street. 36, Louis A. Fried. 37, Ralph A. Woolsey. 38, R. Allyn Moser. 39, F. W. Haecker. 40, Mrs. C. O. Decker. 41, Mrs. Lawrence E. Hicks. 42, Kenneth H. Masters. 43, E. L. Moseley. 44, Ward Zimmermann. 45, Richard P. Grossenheider. 46, Clair T. Rollings. 47, Mrs. John A. Thompson. 48, Mrs. Seth A. Low. 49, Seth H. Low. 50, Lawrence I. Grinnell.

51, Milton D. Thompson. 52, Dean Tanner. 53, Karl E. Bartel. 54, Gustav Swanson. 55, O. S. Pettingill, Jr. 56, C. W. Plattes. 57, Mrs. Walter E. Rogers. 58, Urban C. Nelson. 59, Mrs. Cleveland P. Grant. 60, C. O. Decker. 61, Warren W. Chase. 62, William T. Cox. 63, Clarence S. Young. 64, T. Wayne Porter. 65, Mrs. Margaret M. Nice. 66, A. T. Harris. 67, Mrs. A. T. Harris. 68, B. L. Hawkins. 69, E. T. Cox. 70, Henry C. Kyllingstad. 71, Byron E. Harrell. 72, William H. Longley. 73, Ella Heinke. 74, Mrs. Walter J. Breckenridge. 75, Perna M. Stine. 76, David Faegre. 77, Mrs. R. H. Mylin. 78, F. R. Zimmerman. 79, Mrs. Emil H. Jensen. 80, Mrs. D. B. Green. 81, Mrs. V. O. Wilson. 82, Walter E. Scott. 83, Mrs. Edgar O. Wilson. 84, J. Murray Speirs. 85, Mrs. Doris Huestis Speirs. 86, C. J. Henry. 87, Alfred Lewy. 88, David Schmidt. 89, Robert Schmidt. 90, Constance Nice. 91, Mrs. O. S. Pettingill, Jr. 92, Nevada E. Schmidt. 93, Germaine Berent. 94, Leone Patricia Knox. 95, Robert B. Lea. 96, Dale W. Jenkins. 97, J. S. Lindquist. 98, O. A. Stevens. 99, Mrs. J. S. Lindquist. 100, Mrs. William Ure.

101, Mrs. R. N. Rosenwald. 102, Mrs. Hugh H. Owen, 103, ————104, Mrs. C. R. Nelson. 105, Mrs. Mary Lupient. 106, Mrs. A. D. Cornica. 107, Paul C. Gatterdam. 108, R. M. Berthel. 109, Lawrence H. Walkinshaw. 110, J. Van Tyne. 111, Cleveland P. Grant. 112, George Miksch Sutton. 113, Walter J. Breckenridge. 114, Ross Hanson. 115, G. A. Ammann. 116, Arnold B. Erickson. 117, George N. Rysgaard. 118, Jean Laffoon. 119, S. Charles Kendeigh.

WILDLIFE CONSERVATION

Pan American Convention

The United States is already party to migratory bird protection treaties with Canada and Mexico, ratified in 1916 and 1936, respectively. The Pan American Convention on Nature Protection and Wildlife Protection in the Western Hemisphere is a step toward a similar, but more inclusive, treaty between the United States and the South American nations. The following account is quoted from *Wildlife Review*, No. 29, January 1941: pp. 54-55.

On October 12, 1940, plenipotentiaries of six Latin American governments and the United States signed the convention on "Nature Protection and Wildlife Preservation in the Western Hemisphere" when it was deposited and opened for signature at the Pan American Union in Washington.

The Convention was drawn up by a Committee of Experts from the 21 American Republics, which met in Washington May 13 to 16, and was approved by the Governing Board of the Pan American Union at its June meeting. The formulation of the Convention was recommended in one of the resolutions of the Eighth Pan American Conference, held at Lima, Peru, in December, 1938.

The Convention consists of twelve articles. Article 1 defines the terms used in the Convention. Under Article 2, the contracting governments undertake to create national parks, national reserves, nature monuments, and wilderness reserves within their territories as soon as possible. They are to notify the Pan American Union of the establishment of any such parks, etc., and of any legislation adopted in connection therewith. Under Article 3, the governments agree to prohibit the destruction of the fauna and flora in national parks except under the direction or control of the proper authorities. Wilderness reserves, according to Article 4, are to be kept inviolate except for duly authorized scientific investigations or government inspection.

Under Article 5, the governments pledge themselves to adopt legislation which will assure the protection and preservation of the natural scenery, striking geological formations, and regions and natural objects of aesthetic interest or historic or scientific value. Cooperation among the contracting governments in promoting the objectives of the Convention is provided for in Article 6, and the adoption of appropriate measures for the protection of migratory birds, in Article 7.

Article 8 declares the protection of certain species to be of special urgency and importance and urges that permission for their killing, capturing or taking, be granted only in order to further scientific purposes. Rules for the regulation of the importation, exportation and transit of protected flora and fauna are set forth in Article 9. Articles 10, 11, and 12 deal with protocolary matters, and stipulate, among other things, that the Convention will come into force three months after the deposit of not less than five ratifications with the Pan American Union.

Gabrielson's "Wildlife Conservation"

Conservation in the United States is holding a pre-season inventory.

Natural resources used to be the concern of relatively few organizations and individuals; now that the cat is out of the bag, the general public is becoming interested. Two results have followed, almost together: the demand that something be done about it, and that the public be told what and why. Education, compulsory or otherwise, is thus definitely a part of the new order. Pre-digested materials have been lacking, hence the many new books which take stock of present conditions and make recommendations for the future.

Of these, the latest is Ira N. Gabrielson's "Wildlife Conservation" (The MacMillan Co., N. Y., 1941, xv + 250 pp., illus., $3.50). Quite apart from the book's authority as a statement of the Chief of the Fish and Wildlife Service, it is required reading on the basis of content alone.

The purpose of the book, as stated in the preface, is not to give a complete analysis of all factors affecting wildlife conservation, but to present the basic

facts and to emphasize that conservation of soil, water, forests, and wildlife are phases of a single problem—the restoration and future wise use of renewable natural resources. The first seven chapters deal with these interdependences, the rest with the special problems of certain groups of wildlife to show that all must have suitable environment and that any use of wildlife must not remove more than the annual increase if populations are to hold up. The chapter headings give an idea of the ground that is covered: conservation of renewable resources, soil erosion and wildlife, water conservation, life of the waters, forest conservation, relationship between forestry and wildlife, grassland conservation and its relation to wildlife, some basic facts in wildlife conservation, resident game, migratory birds, fur animals, non-game birds and mammals, rare and vanishing species, predator relationships, wildlife refuges and their place in conservation, surmounting the obstacles to conservation.

Gabrielson has done an outstanding job of selecting and organizing materials from a field which is difficult to appraise at best, and which has become cluttered with odds and ends of incomplete data. To this essential winnowing he has added a distinctive interpretative ability and a clear, simple style of writing which are uncommon in the literature of conservation. Particularly good are the discussions of the inter-relationships of all renewable resources, the dependence of animals upon their environment, and the role of insect-eating birds, for example. The many photographs are unusually fine, although not well distributed through the text.

He may be criticized justly—and severely—for his failure to include an adequate bibliography. It might be argued that it was impossible to list every reference which contributed to such an inclusive synthesis, but a selected bibliography would have discharged his obligation much better than the eight footnote references which are given. This is all the more true since the book will doubtless be used as a text-book, as suggested by the publishers. On the same grounds, the index is also inadequate.

Occasionally, Dr. Gabrielson seems to have condensed too much. Fishes get less attention than is their due, and no inclusive discussion of fish populations is complete without reference to the work of Thompson and others of the Illinois Natural History Survey; the influences of large dams upon wildlife are passed over too lightly; only Federal refuges are shown in the figures, although others are included in the text; the problem of survival and recovery of small populations is treated only as affected by predators; the distinction between the mere presence of wildlife and its presence *in numbers*—a critical point, particularly in game management—is often not drawn. There is no treatment of farm wildlife comparable to the sections on forests and wildlife and grasslands and wildlife. Gabrielson does not propose that we give the country back to the Indians, nor does he ignore the problem of farm wildlife: but I suggest that farmlands as wildlife environment deserve as specific treatment as forests and grasslands. The sorts of forest management which Gabrielson describes—multiple use, sustained yield, selective cuttings, logging rotations—cannot be used in woodlots as readily as in large forests. Nevertheless, the main discussion of forest-wildlife relationships hinges upon such methods of large-forest management, even though his statistics (p. 55) show that about 41 per cent of the total acreage of "private commercial forest lands" is in units averaging about 40 acres each. In the same way, "grasslands" are primarily the Western range, leaving small pastures and meadows for incidental treatment elsewhere.

A few of his interpretations will probably be challenged. For example, the treatment of predation is unusually sane, taking equally to task the sportsman, conservationist, and biologist for the distortions of view particular to each, but I would question a few points of detail. In his summary of predation, Gabrielson

gives six principles (pp. 209-210). The first states that predators generally live on surplus populations, the last, that hunting may disturb the numerical ratio of game to predators, so that some reduction of predators may be necessary. I do not see why the mechanics of the removal of the surplus—whether by predators or by hunters—should greatly affect the predator-prey relationship of the remainder. Experimental work has indicated no such effect on Iowa Bob-whites, for example. And in his scrupulous care to present all aspects of the question, Gabrielson has perhaps left too much room for the argument that any case, anywhere, is one of the exceptions that permits—or demands—the killing of predators.

In one instance, Gabrielson has been dangerously lax in his use of "common names" of plants. "Wild camass" is cited as a food of early American Indians. According to Britton and Brown, "camass" relates to two genera, one of which (*Toxicoscordion,* with about seven North American species) is composed of poisonous perennials, the other (*Quamassia,* with about four species) of edible bulbs.

In the main, there is a refreshing absence of the sweeping generalities so common to the promotional literature of conservation. There are a few exceptions, as: "By conservative use, all the forest resources can be maintained and at the same time utilized for the benefit of the human race" (p. 55), and "As a matter of fact, good farm management alone, particularly where there is some waste land, will almost automatically improve conditions for the quail and other species that have somewhat similar food and cover requirements" (p. 122). His opinion of the results of wildlife management to date (see particularly p. 246) seems rather optimistic.

Most conservationists and ornithologists are still using the old so-many-birds-eat-so-many-insects argument for bird protection. It is significant that Gabrielson, as Chief of the Bureau which fostered it, so frankly admits its weakness. No equally flashy rallying call has yet been found. Gabrielson offers a more sober basic principle: the function of animals (i.e. wildlife) as "part of nature's age-old mechanism for building and maintaining soils and waters" (p. 131).

This same thing has been his aim throughout the book—to strip the problem of wildlife conservation down to its essentials in preparation for the work that must be done, instead of diverting attention from these fundamentals by a flourish of trumpets. He has done it remarkably well.—F. N. Hamerstrom, Jr.

Audubon Society Campaigns to Curb Feather Trade

The recent popularity of quills and other feathers in the millinery trade and the resulting threat to many wild birds has stirred the National Audubon Society and other conservation organizations to the most active bird protection campaign since the close of the earlier effort of this sort in 1913. "Massacred for Millinery", (the title of Circular No. 45, written by Richard H. Pough,) reports very vividly the threatened reduction of numbers of such birds as cranes, condors, the osprey, and eagles, unless the trend of fashion, public attitude, and corrective legislation can promptly be geared together in a sensible, effective manner to prevent current and threatened abuses.

In brief, the present crisis arises from the popularity of quills on hats and from certain defects in the customs regulations. A loophole in the tariff law permits hat feathers to be brought into this country as "fishing fly" feathers. Also it seems plain that many feathers of wild birds are entered falsely as "raised in domestication". New legislation is sought to help stop these leaks; but probably the best answer lies in the educational program to discourage the use of feathers. Even ornithologists cannot tell the origin of most feathers without extensive comparative material, so obviously the average buyer cannot be expected to discriminate.

Let us all actively cooperate in this very worthwhile campaign. Send for copies of "Massacred for Millinery" and keep posted. Already over 20,000 copies of this bulletin have been distributed. For pamphlets write to the National Audubon Society, 1006 Fifth Avenue, New York, New York. The National Audubon Society also has been responsible for articles in the *Reader's Digest*, *Collier's*, and many other publications. Letters have been sent to the 5,000 members of the National Retail Dry Goods Association. A form letter (to be modified appropriately) and a draft of a resolution for use by clubs have been widely circulated by the Society. The work to be accomplished, they say, includes the passage of the model "Audubon Plumage Law" in all states and the amendment of the Tariff law and Customs regulations to prohibit the importation of feathers for fishing flies and to stop the illegal entry of wild bird plumage allegedly coming from domesticated species.

At the North American Wildlife Conference at Memphis, John H. Baker announced that the National Audubon Society and the organized feather trade had reached an agreement on February 6 which paves the way for legislation to save native wild birds from the hazards of legalized plumage traffic. The details of this agreement will be explained later.—M. D. Pirnie.

WILDLIFE CONSERVATION COMMITTEE,
Frederick N. Hamerstrom, Jr., Chairman.

ORNITHOLOGICAL NEWS

Jean Delacour, the noted French ornithologist, has come to this country and is now serving as consultant on the future development of the New York Zoological Park.

Richard L. Weaver has been appointed ornithologist for the New Hampshire Nature Camp at Lost River, N. H.

With its first 1941 issue our distinguished contemporary, *Bird Lore*, changes its name and becomes the *Audubon Magazine*. Frank M. Chapman founded the magazine in 1899 and edited the first thirty-six volumes. He was succeeded by William Vogt who was the editor for four years. The present editor, Margaret Brooks, is now beginning her third volume. Fortunately *Bird Lore's* volume numbering is being continued. This will help to minimize the confusion with the earler *Audubon Magazine* published in New York in 1887 and 1888.

Frederick N. Hamerstrom, Jr. has been appointed curator of the Edwin S. George Reserve, a division of the University of Michigan Museum of Zoology.

The Cooper Ornithological Club will hold its Fifteenth Annual Meeting at Berkeley, California, on April 11 and 12.

John W. Aldrich, formerly of the Cleveland Museum of Natural History, has taken on new duties as ornithologist of the Biological Surveys section of the Fish and Wildlife Service in Washington, D. C.

George Miksch Sutton and Olin Sewall Pettingill, Jr., left the middle of February on an expedition of several months duration to Tamaulipas and adjoining states of eastern Mexico. Assisting them are two students, Dwain W. Warner and Robert B. Lea.

The National Audubon Society has recently appointed a full time, resident representative, Mr. C. A. Harwell, to direct its expanding activities in California. Mr. Harwell was formerly Park Naturalist in Yosemite National Park. The first state meeting of California Audubon Clubs will be held at Pacific Grove on May 10 and 11.

Pierce Brodkorb left February 13 on his third expedition to Chiapas, Mexico.

ORNITHOLOGICAL LITERATURE [1]

A Field Key to Our Common Birds. By Irene T. Rorimer. Pocket Natural History No. 8, Cleveland Museum of Natural History, Cleveland, Ohio. November, 1940: 4⅛ x 6¾ in., 158 pp., 18 plates, 4 in color, 27 text figs. $1.50.

The purpose of this booklet is to present a "simple formula" for identifying the common birds of northern Ohio in the field. Only "pertinent facts" are given, and in the order of their importance these are habitat, size, and color. The originality of this treatment consequently is that it *reverses* the order ordinarily used in keys in the past, which have been based on color and size, with occasional notes only on habitat. There is much in the author's claim as to the importance of habitat, and undoubtedly the stressing of this point will give useful information to many a beginner, who would otherwise acquire it by the slow process of accumulated experience. Turning to the table of habitats and sizes (p. 13) we find the following classification: I. Water Habitats (a) open water, lakes, ponds, streams; (b) beaches, mud flats; (c) marshes, reeds, wet meadows. II. Land Habitats (d) open country, grassy and cultivated fields, brushy fence rows and swamps; (e) semi-open country, scrubby fields and swamps, landscaped areas, orchards, farms, cities; (f) wooded country, a more or less closed growth of trees. The author is probably wise not to have attempted more than these six categories; indeed we can easily imagine a student about to identify a bird and wondering in just what habitat he is! Perhaps the absence of the "wooded swamp" is the most obvious mistake. Nothing could be more certain than that some birds are severely restricted in habitat. But the great difficulty with using it as a primary key character is that many birds occur commonly in two or more. Some birds will be found in two or more places in this key, but this has been done nowhere nearly enough. For instance, no hawks can be found in section F, though most of them nest there; the Woodcock is absurd in C, in spite of its convenient juxtaposition with the Snipe; it is properly in F, but lacking from E, perhaps the best place of all. While the Rusty Blackbird and Grackle can be found in two or three their habitats, while thumbing its pages. Actually there is no "simple formula" rather than E and F. The absence of the swallows from A and C where they are abundant, is noteworthy. The author is aware that innumerable woodland (F) land-bird transients occur on migration in several habitats in section E.

Many decades of experience has proved color more important than size. An appreciation of relative size, allowing for distance, poor light, etc., is the last technique acquired by the most expert, and no field ornithologist ever lived whose judgment of size was not at times seriously at fault. In many cases the author of this key has relied too much on the linear measurement of total length, leading to such misleading characterizations as the Pigeon Hawk "Robin-size" and the Little Blue Heron "Crow-size." It must be admitted that the key is a marvel of ingenuity in a great many respects. As it includes about 200 species of birds on pages 15–71, it is really highly intricate, anything but a "simple formula." The beginner, in endeavoring to use it, will undoubtedly learn a lot about birds and their habitats, while thumbing its pages. Actually there is no "simple formula" for learning birds.

In my judgment the user of the key would be completely lost without the descriptions on pages 88–154, arranged by families in the accepted sequence. These are an obvious imitation of the method invented by Peterson in his "Field Guide," a copyrighted book. Especially in the first half of the families, the actual clauses in Peterson's descriptions are often inverted only, or are given verbatim in a different order, and the highly original descriptive adjectives used by that author are carried over bodily, all to a degree which is improper without ample acknowledgement, and a statement to the effect that permission to do so has been secured.

[1] For additional reviews see pages 21 and 40.

In the mass the descriptions average more abbreviated, and too often more important diagnostic characters are omitted, while less important ones are retained. In certain cases bad judgment and ignorance result in absurdity. Thus Peterson, in comparing the immature Bay-breasted and Blackpoll Warblers, says "The fall Blackpoll . . . has more distinct streakings on the sides and *white* under tail-coverts instead of yellow." Mrs. Rorimer omits the second clause (which *can* be used) and alters the first character (which *cannot* safely be used, though correct) to read "The Blackpoll may have faint streaks on the breast which the Bay-breasted always lacks." In many cases where the description is wholly original, some important diagnostic character is omitted, while others are erroneous. The notes of the two Yellowlegs are reversed; the Olive-sided Flycatcher is not olive green above and not the largest of the flycatchers, as stated. Peterson's few minor inaccuracies are all faithfully repeated, and his few omissions of worthwhile characters are not repaired in the descriptions before me, which contain far too many errors of omission or commission. Another line gives the status of each species. Summer residents and transients are given an arrival date in spring, but no departure dates; winter visitants are given no dates at all; in all cases room exists for these on the one line. Habitat summaries are usually excellent, but sometimes do not coincide wholly with the Key habitat. (Example, Lincoln's Sparrow, D group in Key, E group on page 153.)

There is no table of contents, but an alphabetical index of the birds comes first, which refers to the illustration, if any, and the description. It should also have referred to the places in the key where the bird is found. The Key contains references under every bird to its description, but the descriptions contain no reference to the same bird in the Key. An appendix gives 30 "rare or uncommon" species, again by habitat, size, and color description. In those cases where a bird is listed under two habitats, the cross reference is erroneous in every case, referring to the second habitat in the appendix. Barring this editorial *lapsus*, the very difficult proofreading, especially the complicated numbering and indentations of the Key, is notably excellent, as in the paper, printing, and typography. The illustrations are by Roger T. Peterson, continuing his well known style, and all the figures have been conscientiously redrawn. In the four colored plates, the figures are often minute, in spite of which the reproduction is remarkably good. The illustrations are excellent, their reproduction does credit to artist and publisher, and greatly enhance the value of this attractive little booklet.—Ludlow Griscom.

Short Papers

Aldous, Clarence M. Report of a Wholesale Die-off of Young Herring Gulls, Hogback Island, Moosehead Lake, Maine. *Bird Banding*, 12, No. 1, Jan., 1941:32–2, illus.

Allen, Robert P. and Frederick P. Mangels. Studies of the Nesting Behavior of the Black-crowned Night Heron. *Proc. Linn. Soc. N.Y., No's* 50, 51, 1940: 1–28, 2 pls., 11 figs. (Awarded the Linnaean Prize for Ornithological Research in 1940).

Arvey, M. Dale. A New Race of Bush-tit from Southeastern California. *Condor*, 43, No. 1, Jan., 1941:74–5. (*Psaltriparus minimus providentialis* subsp. nov. from Providence Mts.)

Baker, Bernard W. Some Observations of the Least Bittern. *Jack Pine Warbler*, 18, No. 4, Oct., 1940:112–14, pl. 16.

Baker, Rollin H. Better Quail Shooting in East Texas. *Texas Game, Fish and Oyster Comm., Bull. No.* 20, Sept., 1940. (18 pp., 10 figs.).

Barnes, V. and W. H. Phelps. Las Aves de la Peninsula de Paraguana Venezuela. *Bol. Soc. Venez. Cien. Nat., No.* 46, 1940:269–301 (repaged 1–33 in reprint).

Beals, Marie V. and J. T. Nichols. Data from a Bird-banding Station at Elmhurst, Long Island. *Birds of Long Island, No.* 3, Nov., 1940:57–76.

BIRD, C. G. and E. G. BIRD. The Birds of North-east Greenland. *Ibis*, 1941, Jan.: 118–61. (Includes many observations on the taxonomy of North American birds).

BRAESTRUP, F. W. The Periodic Die-off in Certain Herbivorous Mammals and Birds. *Sci.*, 92, Oct. 18, 1940:354–5.

BRIGHAM, EDWARD M. JR. Harris's Sparrow in Michigan. *Jack Pine Warbler*, 18, No. 4, Oct. 1940:99–110, pls. 14–15. (Summary of known records).

BROOKS, MAURICE. The Austral Component of West Virginia's Bird Life. *Cardinal*, 5, No. 5, Jan., 1941:97–111.

BURGER, J. WENDELL. Experimental Modification of the Plumage Cycle of the Male European Starling (*Sturnus vulgaris*). *Bird Banding*, 12, No. 1, Jan., 1941:27–9.

CHAPMAN, FRANK M. The Post-Glacial History of *Zonotrichia capensis*. *Bull. Amer. Mus. Nat. Hist.*, 77, Art. 8, Dec. 10, 1940:381–438, figs. 1–17.

COWAN, IAN MCT. Bird Records from British Columbia. *Murrelet*, 21, No. 3, Sept.-Dec., 1940:69–70.

CRUICKSHANK, ALLEN D. Albinism in Gulls. *Proc. Linn. Soc. N.Y., No's* 50–51, 1940:31–2.

DAVIS, DAVID E. La Manifestacion de Localismo en los Furnariidae. *El Hornero*, 7, No. 3, Sept., 1940:366–70, fig. 1.

EDGE, ROSALIE and ELLSWORTH D. LUMLEY. Common Hawks of North America. *Emergency Conservation Comm. Publ. No.* 81, 1940. 26 pp., illus.

ENGELS, WILLIAM L. Wing Skeleton and Flight of Hawks. *Auk*, 58, No. 1, Jan., 1941:61–9.

GABRIELSON, IRA N. America's Greatest Bird Concentration. Part I. *Bird Lore*, 42, No. 6, Nov., 1940:496–506.

GLADKOV, N. A. Taxonomy of Palaearctic Goshawks. *Auk*, 58, No. 1, Jan., 1941: 80–90.

GRANGE, WALLACE. A comparison of the displays and vocal performances of the Greater Prairie Chicken, Lesser Prairie Chicken, Sharp-tailed Grouse and Sooty Grouse. *Passenger Pigeon*, 2, No. 12, Dec., 1940:127–33, 1 photo.

GRIMM, WM. C. Migration Record for the Spring of 1940 in the Pymatuning Region, Crawford Co., Pa. *Cardinal*, 5, No. 5, Jan., 1941:112–13.

GROSKIN, HORACE. The Invasion and Wing Measurements of the Eastern Purple Finch at Ardmore, Pa., During the Spring of 1939. *Bird Banding*, 12, No. 1, Jan., 1941:8–16.

GUBERLET, JOHN E. and H. H. HOTSON. A Fly Maggot Attacking Young Birds, with Observations of its Life History. *Murrelet*, 21, No. 3, Sept.-Dec., 1940: 65–7.

HARDY, ROSS and HAROLD G. HIGGINS. An Annotated Check-List of the Birds of Washington County, Utah. *Proc. Utah Acad. Sci., Arts, and Letters*, 17, 1940: 95–111. (236 species).

HARRIS, HARRY. The Annals of *Gymnogyps* to 1900. *Condor*, 43, No. 1, Jan., 1941:2–55, figs. 1–22.

JICKLING, LEE. Mr. Bob-white Sticks It Out. *Jack Pine Warbler*, 18, No. 4, Oct., 1940:114–15, pl. 17. (Male alone incubated 13 infertile eggs from at least July 18 to October 7).

KALMBACH, E.R. Suggestions for Combating Objectionable Roosts of Birds, with Special Reference to Those of Starlings. *Wildlife Leaflet*, 172, Dec., 1940. 19 pp. (mimeo.).

KEITH, B. ASHTON. The Arizona Jay, *Aphelocoma siberii arizonae*, Found in Kansas. *Trans. Kans. Acad. Sci.*, 43, 1940:427.

KIRKPATRICK, CHARLES M. Some Foods of Young Great Blue Herons. *Amer. Midl. Nat.*, 24, No. 3, Nov., 1940:594–601, 3 photos. (Near Trout Lake, northeastern Wisconsin).

KRUG, HOWARD H. Bluebird Banding at Chesley, Ontario. *Bird Banding*, 12, No. 1, Jan., 1941: 23–6.

KUERZI, RICHARD G. The Roosting of Tree Swallows. *Proc. Linn. Soc. N.Y., No's* **50–51,** 1940:38–9.

LACK, DAVID et al. "Courtship Feeding in Birds." *Auk,* **58,** No. 1, Jan., 1941:56–60.

LANGELIER, GUSTAVE. La Mouette Blanche, Pagophila alba (Gunnerus). *Naturaliste Canadien,* **68,** No. 1, Jan., 1941:5–9.

LA RIVERS, IRA. The Mormon Cricket as Food for Birds. *Condor,* **43,** No. 1, Jan., 1941:65–9.

LEHRMAN, DANIEL S. and ORLANDO K. STEPHENSON, JR. A Note on the "Begging" of Nestling Flickers. *Proc. Linn. Soc. N.Y., No's,* **50–51,** 1940:36–7.

LINDSEY, ALTON A. Recent Advances in Antarctic Bio-geography. *Quart. Rev. Biol.,* **15,** No. 4, Dec., 1940:456–65.

LISTER, M. D. The Development of the Song in Young Chaffinches. *Brit. Birds,* **34,** No. 7, Dec., 1940: 156–8.

LONG, W. S. Check-list of Kansas Birds. *Trans. Kans. Acad. Sci.,* **43,** 1940:433–56. (427 forms).

MCKEEVER, C. K. Further Notes on the Birds of the Oyster Bay Region. *Birds of Long Island, No.* **3,** Nov., 1940:76–8.

MARTIN, MRS. GRACE. White Pelicans at Saginaw Bay. *Jack Pine Warbler,* **18,** No. 4, Oct., 1940:111.

MILLER, ALDEN H. The Buccal Food-carrying Pouches of the Rosy Finch. *Condor,* **43,** No. 1, Jan., 1941:72–3, fig. 23.

MONTAGNA, WILLIAM. Observations on a Young Nighthawk. *Cardinal,* **5,** No. 5, Jan., 1941:114–16.

MOON, EUGENE L. Notes on Hawk and Owl Pellet Formation and Identification. *Trans. Kans. Acad. Sci.,* **43,** 1940:457–66.

MOREAU, R. E. "Duetting" in Birds. *Ibis,* **1941,** Jan. :176–7.

MOSBY, HENRY S. Nesting Habits and Nesting Losses of the Wild Turkey in Virginia. *Game Breeder & Sportsman,* **45,** No's 9 and 10, Sept.-Oct., 1940:146, 147, 162; 168, 169, 179.

MOSBY, HENRY S. The Wild Turkey in Virginia. Preliminary Report. *Va. Comm. of Game and Inland Fisheries, Div. of Game, Investigational Bull.,* **1,** Sept., 1940:18 pp. (Mimeo.).

NICE, MARGARET M. Observations on the Behavior of a Young Cedar Waxwing. *Condor,* **43,** No. 1, Jan., 1941:58–64.

NORRIS, ROBERT. Scientific Collecting vs. Sight Observation in Local Bird Study. *Oriole,* **5,** No. 4, Dec., 1940:40–1.

ORR, ROBERT T. Some Observations on Autumnal Behavior of the California Pine Grosbeak, *Condor,* **43,** No. 1, Jan., 1941:56–7.

PELKWYK, JOOST TER. Fowling in Holland. *Bird Banding,* **12,** No. 1, Jan., 1941: 1–8, figs. 1–5.

RINKEL, G. L. Waarnemingen over het gedrag van de Kievit (*Vanellus vanellus* (L.)) gedurende de broedtijd.. *Ardea,* **29,** No's 2–3, July, 1940:108–147, figs. 1–9, pls. 6–7. (Courtship and nesting habits of the Lapwing. Summary in English).

RUSSELL, HENRY N., JR. and ANGUS M. WOODBURY. Nesting of the Gray Flycatcher. *Auk,* **58,** No. 1, Jan., 1941:28–37.

SAWYER, EDMUND J. Bird Houses, Baths, and Feeding Shelters. How to Make and Where to Place Them. *Cranbrook Inst. Sci., Bull. No.* 1 (3rd ed.), 35 pp., illus. ($ .20. Address Cranbrook Inst. Sci., Bloomfield Hills, Mich.).

SCOTT, THOS. G. The Western Burrowing Owl in Clay County, Iowa, in 1938. *Amer. Midl. Nat.,* **24,** No. 3, November, 1940:585–93, 3 photos. (Mainly a study of summer food based on 249 pellets).

SEIBERT, HENRI C. The Hybrid Warblers of Maryland. *Bull. Nat. Hist. Soc. Maryland,* **11,** No. 1, Sept.-Oct., 1940:1–6, 1 pl. (mimeo).

SMITH, STUART. Some Notes on the Scottish Crested Tit. *Brit. Birds,* **34,** No. 8, Jan., 1941:166–71, figs, 1–3. (Breeding habits of *Parus cristatus scoticus*).

SNYDER, L. L. In Memoriam: James Henry Fleming. *Auk,* **58,** No. 1, Jan., 1941: 1–12, pl. 1. (With a bibliography of 84 titles).

SPERRY, CHARLES C. Food Habits of a Group of Shorebirds: Woodcock, Snipe, and Dowitcher. *Wildlife Research Bull.,* **1,** 1940. (37 pp., 3 color pls. by W. J. Breckenridge).

STONER, DAYTON and LILLIAN C. STONER. Feeding of Nestling Bank Swallows. *Auk,* **58,** No. 1, Jan., 1941:52–5.

SUTTON, GEORGE MIKSCH and THOMAS D. BURLEIGH. Birds Recorded in the State of Hidalgo, Mexico, by the Semple Expedition of 1939. *Annals Carnegie Mus.,* **28,** Art. 9, 1940 (Jan. 10, 1941):169–86. (An annotated list of 130 forms, four not fully identified. *Arremonops rufivirgatus ridgwayi* subsp. nov. described from near Jacala, Hidalgo).

SWENK, MYRON H. Distribution and Migration of the Dowitcher in Nebraska. *Nebraska Bird Rev.,* **8,** No. 2, Dec., 1940:63–74. (Includes a general taxonomic discussion and a key for separating three forms).

TANNER, JAMES TAYLOR. Three Years with the Ivory-Billed Woodpecker, America's Rarest Bird. *Audubon Magazine,* **43,** No. 1, Jan., 1941:4–14.

TAVERNER, P. A. The Nesting of Ross's Goose, *Chen rossi. Canad. Field-Nat.,* **44,** No. 9, Dec., 1940:127–30.

TINBERGEN, L. Beobachtungen über die Arbeitsteilung des Turmfalken (*Falco tinnunculus* L.) während der Fortpflanzungszeit. *Ardea,* **29,** No's 2–3, July, 1940: 63–98, illus.

TOMKINS, IVAN R. Notes on Macgillivray's Seaside Sparrow. *Auk,* **58,** No. 1, Jan., 1941:38–51, pl. 2–3.

TRINE, MRS. GEORGE W. The Northern Purple Martin as a Neighbor. *Nebr. Bird Rev.,* **8,** No. 2, Dec., 1940:45–9.

TRIPPENSEE, R. E. A New Type of Bird and Mammal Marker. *Jour. Wildlife Management,* **5,** No. 1, Jan., 1941:120–4, pl. 8.

TUFTS, R. W. Some Studies in Bill Measurements and Body Weights of American Woodcock (*Philohela minor*). *Canad. Field-Nat.,* **44,** No. 9, Dec., 1940:132–4. (Measurements and sex ratio of 255 individuals taken in autumn of 1938 and 1939. Unfortunately, the sex of 170 of these was assumed from the bill length and not determined by dissection).

UTTAL, LEONARD J. Tarsal Feathering of Ruffed Grouse. *Auk,* **58,** No. 1, Jan., 1941:74–9.

WETMORE, A. A Systematic Classification for the Birds of the World. *Smiths. Misc. Collections,* **99,** No. 7, Oct. 10, 1940:1–11. ($ .10 of Supt. of Documents).

WHELAN, DON B. Birds of a Surviving Area of Original Prairie Land in Eastern Nebraska. *Nebraska Bird Rev.,* **8,** No. 2, Dec., 1940: 50–55.

WHISTLER, HUGH. Differences of Moult in Closely Allied Forms. *Ibis,* **1941,** Jan.: 173–4.

WHITE, W. WALMESLEY. Bird of First Brood of Swallow Assisting to Feed Second Brood. *Brit. Birds,* **34,** No. 8, Jan., 1941:179. (*Hirundo r. rustica*).

YOUNG, HOWARD, BRUCE STOLLBERG, and MURL DEUSING. The Spread of the Cardinal Through Wisconsin. *Passenger Pigeon,* **3,** No. 1, Jan., 1941:1–4, map.

PROCEEDINGS OF THE WILSON ORNITHOLOGICAL CLUB

BY OLIN SEWALL PETTINGILL, JR., SECRETARY

The Twenty-sixth Annual Meeting of the Wilson Ornithological Club was held in Minneapolis, Minnesota, on November 21-24, 1940. Headquarters were in the Minnesota Museum of Natural History of the University of Minnesota; living and dining quarters were in an adjoining building, the Center for Continuation Study.

The Executive Council met on Thursday evening, Friday and Saturday were devoted to two short business sessions, three sessions of papers, a natural color motion pictures session, a symposium on wildlife management, a bird art exhibit, a show of motion pictures, and several social events including the Annual Dinner.

Meeting of the Executive Council

Dr. Josselyn Van Tyne was reappointed Editor of *The Wilson Bulletin*.

The Council accepted the invitation of the Department of Zoology of the University of Illinois and the Illinois Natural History Survey to hold its 1941 Annual Meeting at Urbana-Champaign, Illinois. The meeting time will be Friday and Saturday, November 21 and 22.

Possible locations for the 1942 and 1943 meetings were discussed and Ithaca, New York, was tentatively scheduled for 1942.

To stimulate increase in the Club's endowment through additional life memberships, the Treasurer was authorized to offer life memberships to be paid in four installments of twenty-five dollars each, the balance to be applied toward active memberships if payments are not completed.

The need of more illustrative material in *The Wilson Bulletin* was brought to the Council's attention. The Council took immediate action by directing the transfer of all 1940 income from the endowment toward illustrations and authorizing the appointment of an Illustrations Committee to build up additional funds.

The Editor and Treasurer reported that the costs of publishing the *Bulletin* were rising, resulting in a reduction in the number of pages and the delayed publication or rejection of many important manuscripts. The Council responded by taking two courses of action: (1) Instructing the Treasurer to approach all Associate Members of five or more years standing and urge them to become Active Members. (2) Suggesting two possible amendments to Article II, Section 3, of the Constitution which now reads in part: "The annual dues of associate members shall be one dollar and fifty cents ($1.50). The annual dues of active members shall be two dollars and fifty cents ($2.50)."

One amendment reads: The dues of all associate members shall be raised from one dollar and fifty cents ($1.50) to two dollars ($2.00); the dues of all active members from two dollars and fifty cents ($2.50) to three dollars ($3.00).

The other amendment reads: All associate memberships shall be limited to five years, at the end of which time associate memberships automatically become active memberships.

These proposed amendments were placed in the table to be voted on at the next Annual Meeting.

In behalf of the Wilson Ornithological Club the Council accepted affiliation with the American Ornithologists' Union. This action permits the Wilson Ornithological Club to be represented on the Executive Council of the American Ornithologists' Union by one delegate. The Council instructed the President to appoint the delegate together with one alternate.

Business Sessions

The first business session was called to order by President Lawrence E. Hicks on Friday morning at 9:30. The minutes of the previous meeting were approved without being read since they had already been published in *The Wilson Bulletin*. The reports of the Secretary, Treasurer, Editor, and Librarian were read and approved.

The President appointed three temporary committees.

They were:

Resolutions: L. H. Walkinshaw, J. Murray Speirs, and O. A. Stevens.

Auditing: Albert F. Ganier and Theodora Nelson.

Nominating: Margaret M. Nice, Earl G. Wright, and W. J. Breckenridge.

A list of persons nominated to membership during the current year was placed on the table for approval by the organization.

The reports of the following committees were read and approved: Program, Endowment Fund, Affiliated Societies, Index, Library, Wildlife Conservation and Membership.

The second and final business session was called to order at 4:45 Saturday afternoon by Vice-President Sutton.

Persons nominated to membership during the current year were formally elected.

The Resolutions Committee presented the following resolutions which were then adopted:

Resolved, that the Wilson Ornithological Club at its Twenty-sixth Annual Meeting on November 21-24, 1940, in Minneapolis, Minnesota, wishes to express its deepest thanks to its hosts who have made this meeting so pleasant and successful: to the University of Minnesota, especially to Dr. Thomas S. Roberts and staff of the Minnesota Museum of Natural History and to Mrs. Ruth Lawrence and staff of the University Gallery; the members of the Minneapolis Audubon Society, the Minnesota Bird Club, and the Public Library Bird Club; and to the members of the Local Committee.

Whereas, the Wilson Ornithological Club learns of extensive illegal traffic in the plumage of wild birds in connection with renewed popularity of feathers for millinery purposes, therefore, be it *Resolved,* that the Wilson Ornithological Club goes on record as opposed to the use for millinery purposes, of any wild bird plumage, coming from within or without the United States; be it further *Resolved,* that the officers of the Wilson Ornithological Club join with the National Audubon Society and other organizations to aid in disseminating information to the public and in seeking remedial legislative action and adequate enforcement; and be it still further *Resolved,* that the Wilson Ornithological Club asks for the cooperation of the individual members and affiliated clubs in conveying to the managements of leading department stores and millinery establishments in principal cities throughout the country information as to their opposition to such use of wild bird plumage.

The Nominating Committee offered the following report:

President—Lawrence E. Hicks, Ohio Wildlife Research Station, Ohio State University, Columbus, Ohio.

First Vice-President—George Miksch Sutton, Cornell University, Ithaca, New York.

Second Vice-President—S. Charles Kendeigh, University of Illinois, Champaign, Illinois.

Secretary—Olin Sewall Pettingill, Jr., Carleton College, Northfield, Minnesota.

Treasurer—Gustav Swanson, University Farm, St. Paul, Minnesota.

Additional Members of the Executive Council—Maurice Brooks, West Virginia University, Morgantown, West Virginia; Miles D. Pirnie, W. K. Kellogg Bird Sanctuary, Battle Creek, Michigan; Lawrence H. Walkinshaw, Battle Creek, Michigan.

The report of the Nominating Committee was accepted by motion and the Secretary was authorized to cast one ballot for the nominees, thus electing them officers of the Wilson Ornithological Club for the ensuing year.

The session was formally adjourned at 5:15 P.M.

Papers Sessions

The opening session on Friday morning began with an address of welcome by Dr. Thomas S. Roberts, Director of the Minnesota Museum of Natural History, and a response by President Lawrence E. Hicks.

The remainder of the Friday morning session, a portion of the Friday afternoon session and the Saturday morning session was devoted to the reading of papers. Altogether 19 papers were given. The majority were largely technical, being devoted to the following ornithological studies: life history, 6; distribution and migration, 5; historical 1; ecological, 1; morphological, 1; pathological, 1. Two papers were based primarily on Kodachrome slides of birds; one concerned an expedition.

Below is given the program of papers together with brief abstracts:

Opening Session. Friday Morning, November 22

1. Maurice Brooks, West Virginia University. *Swainson's Warbler in the Mountains of West Virginia.* (15 minutes).

The paper recorded the finding of Swainson's Warbler as a locally abundant summer resident in Nicholas and Fayette Counties, West Virginia. The birds occupy areas where hemlock, rhododendron, mountain laurel, and American holly are the dominant or most abundant woody species.

2. Theodora Nelson, Hunter College of the City of New York and the University of Michigan Biological Station. *Incubation Patches as Breeding Evidence in Shore Birds.* (10 minutes).

In studying museum specimens of shore birds it was found that incubation patches are definite in birds collected during the breeding season. An extensive study of such specimens should provide sufficient evidence (1) to conclude whether both sexes incubate and brood about equally or whether one sex does the larger part, and (2) to indicate the breeding of species in which the actual length of the breeding season is unknown.

3. F. W. Haecker and R. Allyn Moser, Omaha, Nebraska. *Present Day Bird Life Along the Missouri River Compared with Say's and Audubon's Findings.* (15 minutes).

Ornithological notes made during the past 14 years while traveling almost constantly up and down the Missouri River between St. Louis and Sioux City, with an occasional trip as far upstream as Montana were compared with the findings of Thomas Say made in 1819 and 1820 and with the journals of John J. Audubon made during his expedition of 1843 in this region. Say and Audubon listed 212 species seen along the Missouri River. It was thought that the probability would be against seeing 56 of these species on similar journeys at the present day. It would be impossible to see some species for they have become extinct or else their ranges have been greatly reduced. Sixty-three species not mentioned by Audubon or Say would probably be seen at the present time. In general there has been a great decrease in game birds. Other forms, principally the smaller woodland species, seem to have increased. The relative abundance of different species has changed greatly. Reasons for the changes were suggested.

4. J. Van Tyne, University of Michigan Museum of Zoology. *Bird Distribution Among the Islands of Northeastern Lake Michigan.* (10 minutes).

An account of the distribution of birds on the Beaver Islands of Lake Michigan as ascertained during an expedition conducted jointly by the Cranbrook Institute

of Science and the University of Michigan Museum of Zoology under the direction of Dr. Robert T. Hatt.

5. C. Edward Carlson, University of Minnesota and the Minnesota Division of Game and Fish. *A Record of Several Unusual Pheasant Nests from Minnesota.* Illustrated by 2" x 2" Kodachrome slides. (15 minutes).

Accounts were given of a Ring-necked Pheasant nesting in a black mulberry tree and of another nesting in a straw stack. Two cases of extreme persistence of hens incubating addled eggs were described. Examples of nest parasitism involving the pheasant were illustrated and discussed.

6. Arnold V. Erickson, Division of Economic Zoology of the University of Minnesota. *A Study of Wilson's Snipe.* (15 minutes).

Wilson's Snipe appears to have few natural enemies. It has been reported as occurring five times in Marsh Hawks' stomachs, once in a Cooper's Hawk, and once in a Dusky Horned Owl. It has persisted in numbers large enough to keep it on the list of game species probably because it has few natural enemies, is widely distributed, nests in inaccessible places, and has an erratic flight. The most plausible explanation for the production of the sound that accompanies the nuptial performance is the tail-feather theory. Fall food of 76 snipe collected in 8 localities in Minnesota was made up of 61.43 per cent animal material and 38.40 per cent vegetable material. The bulk of the animal food consisted of snails and the larvae of midges, crane flies, horse flies and dragon flies. The vegetable food consisted of fruits of *Scirpus, Carex, Juncus,* and green plant parts. About 80 per cent of the snipes examined were infected with parasites: tapeworms, *Haploparaxis, Diorchis, Paricterotaenia;* flukes, *Hypoderaeum, Cyclocoelum cuneatum, Echinostoma revolutum;* roundworms, *Cosmocephalus capellae;* protozoa, *Sarcocystis rileyi.* The average weight of 41 females was 115.28 grams and of 32 males 117.20 grams. The average bill length of 33 females was 66.34 mm. and of 32 males 65.33 mm. There seems to be no correlation between sex and weight or bill length. Of 86 snipes, 39 were males and 47 females or .83 males for each female or 45.34 per cent males. Grazing cattle improve snipe habitat.

7. Harry H. Wilcox, Jr., University of Michigan and the University of Michigan Biological Station.

An Ecological Survey of the Birds of Reese's Bog, Cheboygan County, Michigan. Illustrated by 3¼" x 4" slides. (15 minutes).

A report of a study of birds inhabiting a bog area and their relationship to the various plant associations. The study was carried on during the summers of 1939 and 1940 at the University of Michigan Biological Station.

Friday Afternoon

8. Miles David Pirnie, W. K. Kellogg Bird Sanctuary, Battle Creek, Michigan. *Identifying Waterfowl.* Illustrated by 2" x 2" Kodachrome slides. (15 minutes).

Methods of identifying wild ducks in flight, when swimming, and in the hand. Emphasis was placed on size, shape, color, and pattern differences. Slides were used to demonstrate these methods.

9. Louis A. Fried, Division of Economic Zoology of the University of Minnesota and the Minnesota Division of Game and Fish.

A Local Outbreak of Botulism in Western Minnesota. (15 minutes).

In 1939 and 1940 western duck sickness was reported at Lower Lightning Lake in Grant County, Minnesota, and in 1940 the outbreak was studied intensively. Five hundred and seventy-four birds representing 15 species were found sick or dead.

About 95 per cent of the birds were in advanced stages of the disease and consequently did not survive treatment. Food habit studies on these birds showed empty gizzards in almost every case. Nearly 98 per cent of the ducks were birds of the year, some not even fully feathered out. Frightening birds from the lake by shooting blank shells was very effective. The enormous quantities of green algae in the lake were later proved to be an excellent medium for the botulism bacillus.

SATURDAY MORNING

10. EVADENE BURRIS SWANSON, St. Paul, Minnesota.

The Minnesota Nestings of the Passenger Pigeon. (10 minutes).

All of the known Minnesota nestings of the Passenger Pigeon, including some hitherto obscurely known, were described and the best contemporary estimates of their population quoted. The attitude of local people toward the pigeons in Minnesota was quite different from that in the well known Michigan nestings. There was comparatively little commercialization of the Minnesota "pigeon roosts."

11. ALBERT F. GANIER, Nashville, Tennessee.

Notes on the Sycamore Warbler. (15 minutes).

A study of this southern warbler, including data on spring and fall departure, habitat and song. Especial reference was made to its nesting habits, based on a number of nests found, chiefly about Nashville, Tennessee. A decided preference was shown by these warblers for one species of tree, depending on the area where found. The species of trees preferred were, respectively, sycamore, pine, cypress, and oak.

12. J. MURRAY SPEIRS, University of Illinois.

Robin Movements. Illustrated by 3¼" x 4" slides. (20 minutes).

A discussion of the movements of Robins, both daily movements and seasonal movements being considered.

13. ROBERT B. LEA, Carleton College and the University of Michigan Biological Station.

A Life History Study of the Cedar Waxwing. Illustrated by 2" x 2" Kodachrome and 3¼" x 4" slides. (15 minutes).

Twelve nests of the Cedar Waxwing were found at the University of Michigan Biological Station and the nesting cycle was recorded from the time of choosing the nest site until young left the nesting territory. In this paper special attention was given to the development of the nestlings and the parental care which they received.

14. S. CHARLES KENDEIGH, University of Illinois.

Territorial and Mating Behavior in the House Wren. Illustrated by 3¼" x 4" slides. (20 minutes).

A description of the establishment of territories, manner of defense, combats, how mates are acquired, recognition of sex, shifts in territory and rematings for second broods, and return and rematings in following years in the House Wren.

15. MARGARET M. NICE, Chicago, Illinois, and JOOST TER PELKWYK, University of Chicago.

Some Experiments in Enemy Recognition in the Song Sparrow. (15 minutes).

Experiments were carried out on hand-raised birds with live animals, mounted birds, particularly owls, and cardboard models of the same. No inborn fear of snakes, cats or Cowbirds was found, but there did seem to be an inborn recognition of an owl. There was fear of large moving objects and rapidly moving objects.

16. George Miksch Sutton, Laboratory of Ornithology, Cornell University.
First Impressions of the Bird Life of Southern Arizona. Illustrated with numerous field sketches by the speaker. (20 minutes).

The speaker made his first visit to Arizona in the spring of 1940, his primary purpose being to obtain topotypical material from that region for use in connection with his Mexican research. He spent some time at or near Tucson; visited the Santa Rita Mountains where such points as Mt. Wrightson, Florida Canyon, and Bog Springs were reached; and (with Messrs. Allan Phillips and Lyndon Hargrave of the Museum of Northern Arizona) undertook the first general ornithological survey of the Papago Indian Reservation.

17. Doris Huestis Speirs, Champaign, Illinois.
Facts and Fancies Concerning the Evening Grosbeak. Illustrated by 3¼" x 4" slides. (20 minutes).

A discussion of three points concerning which there have been misconceptions: significance of the name, juvenal plumage, and the limits of the range of the Evening Grosbeak.

18. O. A. Stevens, North Dakota Agricultural College.
Relation of Autumn Migration to Weather. Illustrated by 3¼" x 4" slides. (15 minutes).

Migration in autumn has received less attention than in spring but its study has some advantages. Spring migration, in general, is delayed by cold weather, then moves rapidly. The fall movement is slower and not complicated by the breeding urge. A study of fall migration at Fargo, North Dakota, has been made, based upon trapping records for 15 years, chiefly of Harris' Sparrow on account of the abundance and readiness of this species to enter traps. The repeat records of banded birds are especially useful in showing the time of departure from the locality. Cold waves produce obvious movements, but quite regular movement occurs without marked weather changes, suggesting an inherent rhythm.

19. Bernard W. Baker, Marne, Michigan.
Michigan Birds in Color. Illustrated by 2" x 2" Kodachrome slides. (20 minutes).

A series of Kodachrome slides taken with a Leica camera, equipped with 135 mm. and 500 mm. lenses, showing 15 species of common birds during the nesting season.

Natural Color Motion Picture Session
Saturday Afternoon

The last session of the meeting was devoted to a showing of over 3000 feet of 16 mm. Kodachrome motion pictures.

Below is given the program of motion pictures together with brief comments on their subject matter.

20. Earl G. Wright, The Chicago Academy of Science.
Birds of the Arid Southwest (30 minutes).

A portrayal of the Chicago Academy of Science's 1940 Arizona expedition. There were shown eighteen species of birds, together with a few shots of reptiles, desert flowers, and scenery.

21. Lawrence H. Walkinshaw, Battle Creek, Michigan.
Some 1940 Crane Observations in Mississippi and Michigan. Illustrated in part by 3¼" x 4" slides. (30 minutes).

Studies of the nesting areas and several nests of the Sandhill Crane in Mississippi; studies of spring movements, nesting, and fall movements and concentrations of the Sandhill Crane in Michigan.

22. Lawrence I. Grinnell, Laboratory of Ornithology, Cornell University.
Birds of the Hudson Bay Tundra. (30 minutes).

A motion picture record taken by the speaker and Ralph S. Palmer during a visit to Churchill, Manitoba in June and July, 1940.

23. A. Trevenning Harris, Gary, Indiana.
Nesting of the Ring-billed Gull and Caspian Tern in Wisconsin and the Red-headed Woodpecker and Bluebird in Indiana. (30 minutes).

Nesting studies of the Ring-billed Gulls and Caspian Terns on Barker's Reef in Lake Michigan (Wisconsin side); nesting studies of one Red-headed Woodpecker nest and three Bluebird nests.

24. Murl Deusing, Milwaukee Public Museum.
Nesting Studies of the Marsh Hawk. (25 minutes).

Activities of Marsh Hawks at two nests studied during the summer of 1940 at Wind Lake, Racine County, Wisconsin.

A Symposium of Wildlife Management

Directly following the papers session on Friday afternoon, a symposium on wildlife management was led by Aldo Leopold of the University of Wisconsin who served as Chairman.

I. *What Is Wildlife Management Like in Practice?*

What has it done for game? What has it done for (or to) songbirds? Raptors? Mammals? Food and Cover? What has it done for (or to) human attitudes toward all the above? How can the ornithologist or conservationist discriminate between good and bad management?

Discussion:

Lawrence E. Hicks, Ohio Wildlife Research Station.

The Farmer Cooperatives in Ohio.

Aldo Leopold, University of Wisconsin.

The Farmer Cooperatives in Wisconsin.

Warren W. Chase, Soil Conservation Service.

The Soil Conservation Districts of the Central States.

II. *A General Discussion of the Above Questions Led by the Chairman.*

A Show of Natural Color Motion Pictures

During Friday evening three members presented some of their latest motion pictures as follows:

Migrating Geese and Booming Prairie Chickens.

Ralph A. Woolsey, Minnesota Department of Conservation.

Bright Feathers of the Prairies.

Olin Sewall Pettingill, Jr., Carleton College and the University of Michigan Biological Station.

With the Greatest of Ease.

Cleveland P. Grant, Baker-Hunt Foundation, Covington, Kentucky.

Through the courtesy of the National Audubon Society, J. R. Pemberton's remarkable film, "The California Condor" was viewed at the conclusion of the show.

The Bird Art Exhibit

The University Gallery of the University of Minnesota cooperated with the Wilson Ornithological Club in the arrangement of an unusually impressive and representative bird art exhibit. The exhibit was held in the University Art Gallery

in Northrop Auditorium and was not only open to members and visitors during the meeting but was also open to the public from November 12 to 19.

Altogether 243 items were displayed, representing 35 named artists. All but a very few of the items were original works.

A Special Committee for the 1940 Bird Art Exhibit was responsible for assembling much of the material. This committee consisted of George Miksch Sutton, *Chairman,* R. T. Peterson and W. J. Breckenridge. Also a member of the committee was Mrs. Ruth Lawrence, Director of the Gallery. Upon her rested the arduous task of directing the unpacking and final arrangement of the exhibit.

Below is presented a list of the artists whose works were represented. When their works were not loaned by the artists themselves but by cooperating organizations, institutions and individuals, credit is given accordingly.

James E. Allen
Five etchings loaned by Kennedy & Company, New York City.

John James Audubon
Five prints loaned by Kennedy & Company, New York City.
Five prints loaned by Mrs. Franklin Crosby, Jr., Minneapolis.
Five plates from the Elephant Folio and five original sketches loaned by the Museum of Comparative Zoology, Cambridge, Massachusetts.

Richard E. Bishop
Six prints.

Courtenay Brandreth
Five water colors.

Rex Brasher
Six water colors.

Walter J. Breckenridge
Four water colors
One etching

Allan Brooks
Two oil paintings

James L. Clark
Ten small paper weights loaned by the J. L. Clark Studios, Inc., New York City

E. S. Dingle
Three water colors

Louis Agassiz Fuertes
Two large oil paintings loaned by the New York Zoological Society.
One sketch loaned by William Kilgore, Minneapolis.

John Gould
Two prints loaned by Mrs. Franklin Crosby, Jr., Minneapolis.

Owen J. Gromme
Six oil paintings

Richard P. Grossenheider
One bronzed statue, two charcoal drawings, and one water color.

Charles E. Heil
Two water colors

H. Albert Hochbaum
Three paintings

R. Bruce Horsfall
Three large oil paintings loaned by the New York Zoological Society.
One oil painting and four water colors.

F. L. Jaques
Four paintings loaned by Kennedy and Company, New York City.

H. Jones
Four original paintings for Beebe's "Monograph of the Pheasants" loaned by the New York Zoological Society.

Bruno Lilijefors
One painting loaned by Mrs. George P. Jeppson, Worcester, Massachusetts.
Harriet Lord
One painting
William A. Lunk
Four paintings
Athos Menaboni
Two paintings
Robert M. Mengel
Five water colors
William Montagna
Two paintings
O. J. Murie
Four oil paintings
Arthur D. Nelles
Three water colors
Roger T. Peterson
Five paintings
Ralph S. Palmer
Three paintings
William J. Schaldach
Six prints
Peter Scott
One painting loaned by Mrs. Paul Hammond, New York City.
Joel Stolper
Three paintings loaned by the New York Zoological Society.
George Miksch Sutton
One painting loaned by the New York Zoological Society
Three oil paintings and three water colors.
Walter A. Weber
One painting
Five paintings loaned by the National Park Service, U.S. Department of the Interior.
Joseph Wolfe
Twenty-six prints from the "Birds of Paradise" collection of Daniel Giraud Elliot, loaned by the International Art Publishing Company.
Earl G. Wright
Two oil paintings and four water colors.
Miscellaneous exhibits included five bronzes loaned by Mrs. Franklin Crosby, Jr.; one book of paintings, five scroll paintings, one black and white rubbing, eight modern Japanese prints, two Chinese bird prints, seventeen Edwards and Albin prints, eight parrot prints, one toucan print, and ten hummingbird prints loaned by Mrs. Dwight E. Minnich, Minneapolis.

Social Events

Members and guests of the Wilson Ornithological Club were invited to a tea given by the Local Committee in the University Gallery on Saturday afternoon. The tea was held in the rooms containing the Bird Art Exhibit.

During the preceding evening the staff of the Minnesota Museum of Natural History and members of the Minnesota Bird Club and Public Library Bird Club gave an informal reception to the Wilson Ornithological Club. The study collections of the Museum were open for inspection and there was a fine exhibit of rare bird books. The reception was followed directly by a show of motion pictures in the Auditorium.

The Annual Dinner

The Annual Dinner of the Wilson Ornithological Club took place in the new Coffman Memorial Union on Saturday evening. The menu was a particularly attractive one. When opened, the front and back covers together bore a handsome pen and ink sketch by Walter J. Breckenridge of an adult and four downy Wilson's Phalaropes. Each person attending the dinner received a Wilson Ornithological Club number of *The Flicker,* the quarterly publication of the Minnesota Ornithologist's Union.

President Lawrence E. Hicks opened the after dinner program with some humorous and philosophical remarks and then introduced Walter J. Breckenridge of the Minnesota Museum of Natural History who showed his excellent motion picture film, "Minnesota Cinemacaptures." Although birds were the predominating features of his film, the audience will not forget his intimate studies of ichneumon flies and numerous wildlife scenes along the St. Croix River.

Attendance

At the conclusion of the meeting the registration books revealed the largest attendance in the history of the Wilson Ornithological Club—altogether 353 persons.[1]

One hundred and one of the persons in attendance were members: 11 were Councillors, 3 were Past Presidents. Several members traveled great distances to attend: among them were Ira N. Gabrielson of Washington, D.C.; Eleanor G. Cooley of Berwyn, Maryland; E. L. Nelson of New Brunswick, New Jersey; Theodora Nelson of New York City; Lawrence I. Grinnell and George Miksch Sutton of Ithaca, New York; and George B. Thorp of Pittsburgh, Pennsylvania.

The record-breaking registration was accounted for in a large measure by local attendance: 51 members and 221 visitors from Minnesota. The state with the next largest attendance was Wisconsin, with nine members and eight visitors present. Twenty states and the District of Columbia were represented.

The list of members in attendance follows:

From **Illinois:** 8—C. O. Decker, Alfred Lewy, Mrs. M. M. Nice, E. G. Wright, Chicago; S. C. Kendeigh, Mrs. D. H. Speirs, J. M. Speirs, Champaign; K. E. Bartel, Blue Island. *Visitors,* 3.

From **Indiana:** 1—A. T. Harris, Gary. *Visitor,* 1.

From **Iowa:** 2—David Damon, Ames; Jean Laffoon, Sioux City. *Visitors,* 3.

From **Kentucky:** 1—C. P. Grant, Covington. *Visitor,* 1.

From **Maryland:** 1—E. G. Cooley, Berwyn.

From **Michigan:** 7—G. A. Ammann, Shingleton; B. W. Baker, Marne; M. D. Pirnie, L. H. Walkinshaw, Battle Creek; J. L. George, J. Van Tyne, H. H. Wilcox, Jr. Ann Arbor. *Visitors,* 2.

From **Minnesota:** 51—Miss L. M. Aler, W. J. Breckenridge, C. E. Carlson, Mrs. F. S. Davidson, John Dobie, Miss Jean Drum, R. W. Elliott, H. R. Engstrom, J. D. Fruen, Mrs. D. B. Green, A. M. Hartwell, Mrs. G. R. Magney, L. J. McCann, G. W. McCullough, W. H. Nord, Mrs. H. W. Rice, T. S. Roberts, G. N. Rysgaard, R. C. Schenck, M. D. Thompson, Mrs. R. H. Wells, Mrs. R. B. Wilson, Minneapolis; A. M. Berthel, W. T. Cox, W. Cummings, A. B. Erickson, Gordon Fredine, L. A. Fried, B. L. Hawkins, E. T. Mitchell, Mrs. W. P. Randel, C. T. Rollings, and G. Swanson, St. Paul; R. B. Lea, Miss Dorothy Mierow, Miss Peggy Muirhead, and O. S. Pettingill, Jr., Northfield; Miss Margaret Drum, Owatonna; L. A. Parker, Faribault; K. G. Kobes, Holt; Marius Morse, Robbinsdale, U. C. Nelson, Fergus Falls; Miss Janet Buscho, Blue Earth; L. M. Butler,

[1] Other meetings with heavy total registration are as follows: 1938 Ann Arbor meeting (261), 1937 Indianapolis meeting (238), 1929 Des Moines meeting (202), 1934 Pittsburgh meeting (178), 1939 Louisville meeting (168).

White Bear; Mrs. C. E. Peterson, Madison; Mrs. E. O. Wilson, Montevideo; G. W. Friedrich, St. Cloud; R. H. Daggy, Bemidji; Miss G. M. Smith, Redwood Falls. *Visitors,* 221.

From **Missouri:** 1—R. P. Grossenheider, St. Louis. *Visitors,* 2.

From **Montana:** *Visitor,* 1.

From **Nebraska:** 2—F. W. Haecker, R. A. Moser, Omaha. *Visitors,* 2.

From **New Hampshire:** *Visitor,* 1.

From **New Jersey:** 1—E. L. Nelson, New Brunswick.

From **New York:** 3—L. I. Grinnell, G. M. Sutton, Ithaca; Miss Theodora Nelson, New York City.

From **North Dakota:** 6—Miss P. M. Stine, Minot; S. H. Low, Kenmare; O. A. Stevens, Fargo; H. C. Kyllingstad, Emrick; T. M. Street, Bottineau; C. J. Henry, Upham. *Visitors,* 3.

From **Ohio:** 4—L. E. Hicks, D. W. Jenkins, Columbus, E. L. Moseley, Bowling Green; T. W. Porter, Oak Harbor. *Visitor,* 1.

From **Pennsylvania:** 1—G. B. Thorp, Pittsburgh. *Visitors,* 2.

From **South Dakota:** *Visitor,* 1.

From **Tennessee:** 1—A. F. Ganier, Nashville.

From **Washington, D.C.:** 1—I. N. Gabrielson.

From **West Virginia:** 1—Maurice Brooks, Morgantown.

From **Wisconsin:** 9—Murl Deusing, C. S. Jung, Milwaukee; Aldo Leopold, W. E. Scott, F. R. Zimmerman, Madison; M. L. Partch, Columbia; Mrs. W. E. Rogers, Appleton; P. C. Gatterdam, La Crosse; Miss E. M. Heinke, Wausau. *Visitors,* 8.

Summary of Attendance: Total registration, 353 (Members, 101; Visitors, 252); Total from Minneapolis and St. Paul, 225 (Members, 33; Visitors, 192); Total from Minnesota, 272 (Members, 51; Visitors, 221). Total outside of Minnesota, 81 (Members, 50; Visitors, 31). Maximum number at each session: Friday morning, 140; Friday afternoon, 210; Saturday morning, 155; Saturday afternoon, 320. Approximate number at motion picture show Friday evening, 440. Number at Annual Dinner, 116. Number of persons in group photograph, 119.

REPORT OF THE LIBRARIAN FOR THE YEAR ENDING NOVEMBER, 1940

I have the honor to present herewith the tenth annual report of the Librarian of the Wilson Ornithological Club.

We have made no change in the arrangement of the library, having found it most usable in this form. We now have 107 bound volumes of books and a large number of pamphlets and reprints in the library. In addition there are over a hundred volumes of bound periodicals. We are receiving fifty-five periodicals. However, of this number, a few seem to have suspended publication because of the situation in Europe and Asia.

We have received 92 books, pamphlets, and reprints from members of the Wilson Ornithological Club, bird organizations and other interested societies. There were 28 contributors to the library this past year. A list of the donors to the library will be found in the March, June and December, 1940, issues of the Wilson Bulletin.

We hope other members will follow the example of the one who recently presented the library with a complete set of her own ornithological writings in the form of reprints and separate copies. Since this set was complete we have had it bound in buckram in one volume, which assures the greatest permanence and usefulness.

The reserve stock of the 1940 Wilson Bulletins have been received. A supply was set aside for current distribution, and the others were filed in the stock room provided by the University.

Respectfully submitted,

November 19, 1940. F. RIDLEN HARRELL, *Librarian*

REPORT OF THE SECRETARY FOR 1940[1]

Membership in the Wilson Ornithological Club now totals 1040 and is classified as follows: Honorary, 5; Life, 7; Sustaining, 35; Active, 237; Associate, 756.

Altogether 182 members were lost during the year: 136 were delinquent in dues; 34 resigned; 12 were taken by death. We thus show a net loss of 4 members compared with the all-time high of last year.

All the states are now represented in the membership roll. The state with the greatest number of members is still Ohio, with Michigan 3 members behind. Present figures are: Ohio, 91; Michigan, 88. Illinois follows third with 79 members, New York fourth with 78 and Minnesota fifth with 77. I am pleased to point out a decided increase in numbers of members from California and Missouri.

The total distribution of members by states, provinces, and foreign countries is given below. The figures in parentheses indicate the number of members new to the organization in 1940.

UNITED STATES		
Alabama	5	(2)
Arizona	5	
Arkansas	6	(1)
California	56	(8)
North Carolina	9	(2)
South Carolina	5	
Colorado	11	(1)
Connecticut	8	(1)
North Dakota	12	(3)
South Dakota	2	
Delaware	1	
Florida	12	(2)
Georgia	12	
Idaho	2	
Illinois	79	(15)
Indiana	28	(4)
Iowa	29	(1)
Kansas	6	(2)
Kentucky	21	(2)
Louisiana	8	(1)
Maine	5	
Maryland	15	(2)
Massachusetts	29	(5)
Michigan	88	(10)
Minnesota	77	(37)
Mississippi	6	
Missouri	32	(9)
Montana	6	(2)
Nebraska	9	(1)
Nevada	1	
New Hampshire	5	(1)
New Jersey	12	(2)
New Mexico	6	(1)
New York	78	(13)
Ohio	91	(5)
Oklahoma	12	(2)
Oregon	6	(2)
Pennsylvania	54	(7)
Rhode Island	2	
Tennessee	21	(4)
Texas	23	(1)
Utah	8	(1)
Vermont	2	(1)
Virginia	13	
West Virginia	13	(1)
Washington	6	(1)
Washington, D. C.	24	(1)
Wisconsin	30	(8)
Wyoming	8	
Alaska	2	
Virgin Islands	1	

CANADA		
British Columbia	2	
Manitoba	5	(1)
Ontario	18	
Quebec	3	
Saskatchewan	2	

FOREIGN COUNTRIES		
China	1	
Cuba	1	
Great Britain	1	(1)
Netherlands	1	
Northern Rhodesia	1	
Switzerland	1	
Venezuela	2	(1)

[1] Revised through December 31, 1940.

In general the area of heaviest membership runs from New York and Pennsylvania west to Iowa and Minnesota. Each of these states, with the exception of Indiana and Wisconsin, has shown a steady rise in membership with two exceptions: Wisconsin and Indiana.

The burden of membership solicitation has been borne by Mr. Burt L. Monroe, Chairman of the Membership Committee. I am sure you will appreciate the great amount of time and personal inconvenience this work has necessitated. For us his work is heartening indeed, but for him, I imagine, it is rather discouraging. And why? While Mr. Monroe gathers in dozens of new members, the Club proceeds to lose dozens. When the total score is reckoned, a loss is shown! What can we do to prevent this serious loss of members each year, particularly the loss of members due to failure to pay dues? Mr. Monroe would like a solution to this problem; so would I.

During the year, 4,000 more membership solicitation folders were printed. They are exactly like those printed a year ago except for a few revisions to bring them up to date.

Each new member when elected is formally notified by the Secretary and given a questionnaire to fill out. "Formal" notification actually consists of a notification blank filled out with the new member's name and membership status, and bearing a date and the Secretary's signature. This year notification blanks of a new design were printed. They differ from the older ones in size and shape, wording, and the presence of a footnote calling attention to the fact that the Wilson Club operates on a calendar year basis and that *The Wilson Bulletin* is distributed accordingly.

I wish to express my thanks to the officers, members of the Executive Council, committee chairmen, and numerous members for their kind cooperation and prompt response to my various secretarial requests.

Respectfully submitted,

November 22, 1940. OLIN SEWALL PETTINGILL, JR., *Secretary*.

REPORT OF THE MEMBERSHIP COMMITTEE [1]

The drive for members during the year 1939 under our new system proved so successful that it was attempted again during this year. Lists were again submitted by the various state chairmen and all names were circularized.

Our results this year were not quite as good as those of the preceding year. The same amount of effort was expended in the work and the lists used were just as select. It is quite probable, however, that the unsettled condition of the country due to the war has diverted the people from outside interests, a condition which will eventually be remedied. We are gratified to be able practically to offset our annual losses due to members dropping out of the Club for various reasons.

To the time of this report, we have secured 165 new members: 3 Sustaining; 15 Active; 147 Associate. Minnesota led the list by turning in 37 members closely followed by Illinois with 15, New York with 13, Michigan with 10, Wisconsin and California with 8 each, and Pennsylvania with 7.

These results were obtained by the combined efforts of your officers, the members of the Membership Committee and individual members of the Club. Your Secretary and your Treasurer were largely responsible for the fine Minnesota showing.

The actual cost of solicitation by the Membership Committee has again been confined entirely to the cost of supplies and postage. No additional secretarial help has been used.

Respectively submitted,

November 22, 1940. BURT L. MONROE, *Chairman*

[1] Revised through December 31, 1940.

REPORT OF THE TREASURER FOR 1940

Receipts for 1940

Balance as shown by last report, Nov. 22, 1939	$ 77.92
Dues and subscriptions	1,963.00
Contributions	240.00
Miscellaneous receipts	31.04
Total	$2,311.96

Disbursements for 1940

Refunds on mistaken subscriptions	$ 3.25
Secretary's expense: clerical work, printing, postage, stationery	129.44
Annual meeting expense	176.46
Editor's expense: mailing, postage	37.90
Membership committee expense	12.33
Treasurer's expense: clerical work, postage, mimeographing, materials	79.85
Miscellaneous: reprints (for which author paid W.O.C.), membership in Ecological Society	8.52
Bank charges: collection fees, returned checks	47.75
Bulletin expense: printing, engravings	1,701.89
Total	$2,197.39
Balance on hand in St. Anthony Park State Bank, St. Paul, on Nov. 20, 1940	$ 114.57

Respectfully submitted,

Gustav Swanson, *Treasurer.*

November 22, 1940
Approved by Auditing Committee
Albert F. Ganier
Theodora Nelson

Wilson Ornithological Club Library

The following gifts have been received recently:

Mary A. Bennett—2 reprints.
Maurice Brooks—4 reprints.
P. L. Errington—1 bulletin.
Olavi Kalela—"Über die Regionale Verteilung der Brutvogelfauna im Flussgebiet des Kokemäenjoki", 1938 (291 pp.).
Leon Kelso—Biological Leaflet No. 12.
Amelia R. Laskey—1 reprint.
Margaret M. Nice—"Measurements of Birds", Baldwin et al.; 1 reprint; 3 serials.
Edna Pennell—"Autobiography of a Bird Lover", F. M. Chapman; "Common Birds of Town and Country", H. W. Henshaw; "Audubon's Birds of America", W. Vogt; 9 reprints; 11 volumes of bird journals.
W. H. Phelps—1 reprint.
Henri Seibert—1 bulletin.
Arthur E. Staebler—1 reprint.
Richard L. Weaver—6 reprints.

The Wilson Bulletin Publication Dates

The actual dates of publication of the four numbers in 1940 were: March 28, June 27, September 27, December 27.

TO OUR CONTRIBUTORS

Our members are asked to submit articles for publication in the *Bulletin*. Manuscripts will be accepted with the understanding that they have not been published or accepted for publication elsewhere.

MANUSCRIPT. Manuscripts should be typed on paper of good quality and of letter size (8½ x 11). Write on one side only and use double spacing. The title should be brief and carefully constructed so as to indicate clearly the subject. Ordinarily the scientific names of the birds treated should be given and should appear early in the article. Most articles should have a brief summary at the end.

ILLUSTRATIONS. Photographic prints, to reproduce well as half-tones, should have good contrast and detail. Please send prints unmounted, and attach to each print a brief but adequate legend. Do not write heavily on the backs of photographs.

BIBLIOGRAPHY. Literature cited should ordinarily be listed at the end of articles. These citations should be complete and references to them in the text should be made by the year of the citation and the exact pages referred to.

PROOF. Galley proof will be submitted to authors and must be returned promptly. Expensive alterations in copy after the type has been set must be charged to the author.

REPRINTS. The Club is unable to furnish free reprints to authors. Arrangements will be made, however, for such reprints to be made at cost. A scale of costs, based on the number of pages, is given below. Orders for reprints should accompany the returned galley proof. Charge will be made for a minimum of 100 reprints.

REPRINT SCHEDULE OF THE WILSON BULLETIN

	1 page	2 pp.	4 pp.	8 pp.	12 pp.	16 pp.	Each Additional 4 pp.
100 copies	$1.95	$2.10	$2.40	$4.15	$5.90	$7.00	85c
Each Additional 100 copies	70c	85c	1.40	2.20	2.90	3.50	55c

Covers: $3.85 for first 100 copies; $1.40 for additional 100 copies.

ANNUAL MEETINGS OF THE WILSON ORNITHOLOGICAL CLUB

		President
1914—Chicago	February 5	T. C. Stephens
1914—Chicago	December 29-30	T. C. Stephens
1915—Columbus	December 28-29	T. C. Stephens
1916—Chicago	December 27-28	T. C. Stephens
1918—Pittsburgh	January 1-2	W. F. Henninger
1919—St. Louis	December 29-30	M. H. Swenk
1920—Chicago	December 27-28	R. M. Strong
1921—Chicago	December 26-27	R. M. Strong
1922—Chicago	October 24	T. L. Hankinson
1923—Cincinnati	Dec. 31-Jan. 1, 1924	T. L. Hankinson
1924—Nashville	November 28-30	A. F. Ganier
1925—Kansas City	December 28-29	A. F. Ganier
1926—Chicago	November 26-27	A. F. Ganier
1927—Nashville	Dec. 30-Jan. 1, 1928	Lynds Jones
1928—Ann Arbor	Nov. 30-Dec. 1	Lynds Jones
1929—Des Moines	December 27-28	Lynds Jones
1930—Cleveland	December 29-30	J. W. Stack
1931—New Orleans	December 28-29	J. W. Stack
1932—Columbus	November 25-26	J. M. Shaver
1934—Pittsburgh	December 28-29	J. M. Shaver
1935—St. Louis	December 30-31	J. Van Tyne
1936—Chicago	November 27-28	J. Van Tyne
1937—Indianapolis	December 27-28	J. Van Tyne
1938—Ann Arbor	November 25-26	M. M. Nice
1939—Louisville	November 24-25	M. M. Nice
1940—Minneapolis	November 22-23	L. E. Hicks